Postal Regulatory Commission
Submitted 7/26/2016 4:23:29 PM
Filing ID: 96768
Accepted 7/26/2016

BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268–0001

ANNUAL COMPLIANCE REVIEW, 2015	Docket No. ACR2015

THIRD RESPONSE OF THE UNITED STATES POSTAL SERVICE TO COMMISSION REQUESTS FOR ADDITIONAL INFORMATION IN THE FY 2015 ANNUAL COMPLIANCE DETERMINATION
(July 26, 2016)

In its Fiscal Year 2015 Annual Compliance Determination, issued on March 28, 2016, the Postal Regulatory Commission requested that additional information from the Postal Service regarding several matters be filed within 120 days. The Postal Service's responses to those requests follow.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux, Jr.
Chief Counsel, Pricing & Product Support

Eric P. Koetting
Kara C. Marcello
Valerie J. Pelton
John F. Rosato
David H. Rubin
Ashley Silberhorn
Michael T. Tidwell
Maria W. Votsch

475 L'Enfant Plaza, S.W.
Washington, D.C. 20260-1137
(202) 277-6333
July 26, 2016

POSTAL SERVICE RESPONSES TO ACD REQUESTS

1. Periodicals Pricing Directive

- *The Commission finds that the Postal Service failed to meaningfully address the FY 2014 ACD directive that it report the cost and contribution impact of the worksharing incentives offered for 5-Digit and Carrier Route presortation and on its progress in improving pricing efficiency. The Commission therefore directs the Postal Service within 120 days of issuance of this ACD to file a report which:*
    - *Discusses whether the 5-Digit, Carrier Route, and FSS workshare discounts are the proper economic incentives and send efficient pricing signals to mailers.*
    - *Reports the cost, contribution, and revenue impact of the pricing changes made by the Postal Service in FY 2015.*
    - *Provides a detailed quantitative analysis of the progress made in leveraging the Postal Service's pricing flexibility to improve the efficiency of Periodicals pricing in FY 2015.*
    - *Identifies any obstacles to providing the requested analysis as well as the Postal Service's strategy and timeframe for addressing those obstacles. The Postal Service must provide steps it has taken towards overcoming the obstacles identified.*

RESPONSE:

The requested report is provided in the attached document.

REPORT RESPONDING TO PERIODICALS PRICING DIRECTIVES

Introduction

It would be difficult to analyze the cost and contribution, revenue, and pricing efficiency for Periodicals without understanding the history and purpose of the Periodicals class and the unique factors that have impacted its ability to cover its costs. Beginning with the enactment of the first postal laws in the 1790s, postage rates for Periodicals have been kept relatively low in recognition of the "intrinsic societal value" of the class.[1] During the time period prior to 1970 when Congress was more directly engaged in postal ratemaking, it set low postage rates for newspapers and magazines that "fell far short of covering the actual costs of handling and transporting such mail."[2] Even after the enactment of the Postal Reorganization Act in 1970, for many years Congress subsidized postage on periodicals by approving "revenue forgone" appropriations to help cover the Postal Service's costs.[3] These appropriations, which regularly brought cost coverage over the 100 percent threshold, implicitly recognized that the "value pricing" available for the Periodicals class was never designed to match its costs. Unfortunately, after the revenue forgone appropriations were eliminated in the early 1990s, Periodicals cost coverage soon fell below 100 percent, where it has remained since 1997.[4]

With the enactment of the Postal Accountability and Enhancement Act of 2006 (PAEA), Congress indicated an intent to continue its longstanding policy of encouraging the dissemination of a diverse variety of content by including several provisions recognizing the importance of Periodicals. The "basic function" of the Postal Service is defined as "the obligation to bind the Nation together through the personal, educational, literary, and business correspondence of the people." 39 U.S.C. § 101(a). In providing for a system of modern postal rate regulation, Congress directed the Commission to take into account various factors including "the educational, cultural, scientific, and

[1] Periodicals Mail Study (Joint Report of the United States Postal Service and the Postal Regulatory Commission), at 11 (filed October 13, 2011).

[2] *Id*.

[3] *Id*. at 11-12.

[4] *Id*. at 13-15.

informational value to the recipient of mail matter." 39 U.S.C. § 3622(c)(3)(11). Special, reduced rates are authorized for certain types of publications. See 39 U.S.C. § 3626. Finally, in setting forth guidelines for workshare discounts, Congress made clear that such discounts may exceed avoided costs where "the discount is provided in connection with subclasses of mail consisting exclusively of mail matter of educational, cultural, scientific, or informational value." 39 U.S.C. § 3622(e)(2)(C).[5] To at least a degree, then, the PAEA reflects a Congressional determination that Periodicals have societal value over and above the revenue they generate.

While the PAEA provides the Postal Service with some flexibility to select the rates for Market Dominant products, such as Periodicals, the price cap imposed under Section 3622(d) significantly limits the Postal Service's ability to increase the cost coverage of Periodicals products through price increases. Meanwhile, the volume of Periodicals mail has continued to decline as customers and publishers increasingly move their business online. Periodicals customers vary from large sophisticated mailers to localized, limited-distribution nonprofits, encompassing a wide range of capabilities. As a result, changes to rates or workshare discounts that would benefit large mailers might risk putting smaller publishers out of business. In addition, while Periodicals is a diverse class in terms of size, weight, content, and other characteristics, nearly all Periodicals are prepared as flat-shaped mail, which is generally more costly and less efficient for the Postal Service to process than letter-shaped mail.[6] Thus, despite the important status accorded to Periodicals in the past, and under the PAEA, the Postal Service and the Commission have recognized the unique challenges faced by the class from a cost coverage and operational efficiency perspective.[7]

It is in this context that the Postal Service evaluates the cost coverage of the Periodicals products and discusses strategies for improving the pricing and operational efficiency of the class.

[5] These defined benefits of Periodicals – Educational, Cultural, Scientific, and Informational – are often referred to collectively as "ECSI value."

[6] Periodicals Mail Study, *supra*, note 1, at 6-7.

[7] *Id*. at 91.

Directive One

Workshare Discounts - *Discuss whether the 5-Digit, Carrier Route, and FSS [i.e, Flats Sequencing System] workshare discounts are the proper economic incentives and send efficient pricing signals to mailers.*

The Periodicals rate structure has an extensive set of pricing mechanisms to provide customers with incentives to make efficient preparation choices that reduce mail processing costs. This structure encourages efficient transportation through entry discounts for editorial and advertising pounds, as well as entry components for container prices. Efficient containerization and bundle preparation are encouraged via container and bundle charges. Co-mailing is encouraged through presort discounts.

However, as noted above, efficient preparation is not the only function that Periodicals prices are meant to achieve. The Periodicals class was created to disseminate news, scientific knowledge, and other materials with ECSI value. Thus, the Periodicals pricing structure also has the important function of promoting and maintaining the diversity of editorial content. The Postal Service understands that these pricing objectives can be in conflict, and that a balance must be maintained between encouraging efficient preparation to minimize costs and providing citizens with access to a diversity of editorial content. In the current set of prices, the Postal Service has come very close to achieving efficient pricing for bundles and containers by setting prices equal to the Postal Service's handling cost. As a result, there is not much more that the Postal Service could do to improve the bundle and container price elements. The workshare discounts for presort have not achieved the same level of efficiency, largely due to the tension between: 1) the Postal Service's responsibilities to bind the nation together through the dissemination of and access to a diversity of editorial content; and 2) the operational and market realities of the Periodicals class.

Since the advent of the PAEA, most of the Periodicals price changes have been across-the-board (*i.e.*, the same percentage increase applied to each Periodicals price cell). Postal Service management was (and is) concerned about the impact of price changes on a large number of small publications. Using efficient price signals, with prices set at or near bottom-up modeled costs for containers, and moving passthroughs close to 100 percent, would have translated into huge price increases for many small

publications. In Docket No. R2015-4, the Postal Service began a gradual move away from the across-the-board approach, pricing most of the bundles and pallets based on their bottom-up cost. The Commission acknowledged that in doing so, the Postal Service "improved its pricing signals to mailers regarding how to prepare more efficient mailings."[8] In order to remain within the available cap, and to minimize the price change impact on a large number of small publications, the Postal Service also proposed significant reductions to both the advertising and editorial pound prices. In future price change dockets, the Postal Service plans to work with the per-piece price elements in order to provide pricing signals that encourage more efficient mail preparation.

5-Digit and Carrier Route Pricing and Passthroughs

In the FY 2015 ACD, the Commission suggested that the Postal Service should "increase its efforts to narrow the gap between 5-Digit and Carrier Route passthroughs to promote Carrier Route presortation in non-FSS zones."[9] One way to accomplish this objective would be to increase the passthrough for Carrier Rate pieces relative to the passthrough for Machinable Automation 5-Digit Flats. However, the Postal Service has some concerns about increasing the passthrough for Carrier Route pieces by lowering the Carrier Route piece price. One big concern is that Carrier Route pieces now make up almost 50 percent of all Outside County piece volume. As discussed below, Carrier Route pieces accounted for almost 62 percent of Outside County piece volume, prior to the introduction of FSS prices.

Therefore, a slight reduction in the Carrier Route piece price would require a significant increase in the prices of other small volume rate cells, in order to maximize Periodicals cost coverage. Reducing the Carrier Route price by 7.0 cents in order to match the discount with the cost avoidance, would reduce Outside County revenue by approximately $185 million, or about 12 percent. Outside County Periodicals currently do not cover attributable costs. If an Efficient Component price were implemented for Carrier Route pieces, other rate elements would need to be substantially increased to

[8] Annual Compliance Determination Report (ACD), Fiscal Year 2015 (hereinafter "FY15 ACD"), PRC Docket No. ACR2015 (March 28, 2016), at 22.

[9] FY15 ACD at 19.

retain cost coverage. Furthermore, the reallocation of the cost burden would likely involve increased prices for non-Carrier-Route pieces, which would significantly disrupt segments of the Periodicals industry that do not have the volume or density required to qualify for Carrier Route rates.

Moreover, the Postal Service does not believe that offering a lower Carrier Route price would actually lead to any significant increase in Carrier Route volume. In 2008, the year the current Outside County Periodicals rate structure was implemented, the discount for Carrier Route pieces relative to 5-Digit automation was 10.1 cents, and 48.2 percent of Regular Rate Outside County flats paid Carrier Route rates. In the last comparable quarter before FSS rate implementation (FY2015, Q2), the rate differential was 10.3 cents – nearly identical to FY2008 – and the proportion of Regular Rate Outside County paying Carrier Route rates had increased to 61.8 percent. In other words, the proportion of Carrier Route pieces relative to 5-Digit automation pieces increased substantially between 2008 and 2015, despite only a minimal change in rate differentials from 10.1 cents to 10.3 cents over the same time period. This dramatic increase in the proportion of Carrier Route was driven in large part by the comail incentives introduced in the current rate structure, which enable publications to reduce the number of bundles and containers. Comailed publications were able to achieve greater density, allowing more pieces to qualify for Carrier Route rates. With respect to generating additional Carrier Route volumes, the comail incentives afforded by the piece/bundle/container rate structure have already picked off the lowest hanging fruit. Mailers that have not currently entered comail pools have chosen not to do so for non-postage reasons, such as the time sensitive nature of the publication. For these reasons, further expanding these incentives by increasing the Carrier Route piece discount is not likely to result in significant growth of Carrier Route volume.

Instead, the Postal Service intends to implement a pricing strategy that moves Carrier Route bundles to finer presort pallets. Currently, over 85 percent of Carrier Route bundles are on 3-Digit pallets. Moving these bundles to more finely presorted pallets would lead to significant cost reductions in the area of bundle sorting. The Postal Service plans to work with the mailing industry to develop an appropriate set of

pricing and mailing standard changes that will provide incentives to encourage this behavior.

Raising the 5-Digit Automation price will not improve the Carrier Route passthrough because the 5-Digit Automation Flats price is not the benchmark for the Carrier Route discount. Nonetheless, the Postal Service intends to work with these two prices to encourage more Carrier Route preparation and the movement of Carrier Route to finer presorted pallets.

FSS Pricing and Passthroughs

FSS machines have been a critical element in the Postal Service's operational approach for processing flat-shaped pieces. These machines provide for the automated processing of flat-sized mailpieces, including sequencing them into delivery order. FSS machines therefore avoid labor-intensive manual sortation by carriers. The Postal Service has installed FSS machines in mail processing plants that process high volumes of flat-sized mail.

The Postal Service's experience with the FSS is in its relative infancy, and the Postal Service is still learning about which operational flows will minimize the cost of FSS processing. Currently, the presumed efficient preparation for FSS sites is governed more by mailing rules than by pricing incentives. FSS bundles are required at 6 pieces, and FSS Scheme pallets are required at 250 pounds.

In order to move mail into FSS to reduce/eliminate bundle sorting, and to improve service, the bundle price for FSS scheme bundles on scheme containers was reduced to zero. FSS Scheme and FSS Facility containers are priced close to estimated costs, as FSS scheme containers enable FSS mail to completely bypass bundle sortation operations and be fed directly into the FSS operations. The preparation of FSS Facility containers improves service by allowing the Postal Service to quickly identify FSS mail so that it can undergo necessary bundle sortation and be made available for FSS processing without delay.

FSS piece pricing presents an intractable dilemma because the Postal Service does not need maximal presorting by the mailers in the FSS zones. For pieces destinating in FSS zones, efficiency is not improved by increasing the density for pieces

in the typical density ranges (5-Digit and Carrier Route). Within the FSS zone, increased density can only reduce costs when the density approaches saturation levels. Short of saturation density, pieces of all densities are merged on the FSS and sorted together into DPS order. The premise of the FSS program is that increased mail processing costs (possibly substantial increases for pieces that previously qualified for Carrier Route rates) would be offset by reductions in delivery costs. The net reduction is intended to be systemic, meaning that while overall costs are reduced, some individual components may decrease substantially (mail previously prepared as 5-Digit, 3-Digit, ADC and MADC), while some individual components may increase slightly (Carrier Route). The dilemma is that there is not a practical way to set rates to reflect the fact that, in FSS zones, there is no cost distinction between mail previously paying Carrier Route rates and mail previously paying 5-Digit rates. This dilemma is further complicated by the fact that mailers previously paying predominantly Carrier Route rates do not want higher prices for their Carrier Route pieces.

Under the auspices of efficient component pricing, the piece price for FSS pieces would be set at the sum of the delivery and mail processing costs for FSS pieces. While in theory this is the intent of the current FSS pricing, in practice, strict adherence to measured costs was not followed in the development of current FSS prices. In an effort to mitigate rate shock, FSS prices were developed using a weighted average of the presort price components (5-Digit and Carrier Route).

Directive Two

Impacts of FY2015 Price Changes - *Report the cost, contribution, and revenue impact of the pricing changes made by the Postal Service in FY 2015.*

The Postal Service cannot explicitly measure the impacts of the FY2015 Periodicals price change on revenue, cost, or contribution. The Postal Service can present comparisons of revenue before and after the 2015 price change. However, prices are only one of many components that affect Periodicals revenue. The demand for Periodicals delivery service is derived from the demand for the underlying product, based on the editorial content in the publications. While the demand for Periodicals

delivery service will be impacted by prices for the service, it will also be affected by the cost of substitutes for physical editorial content, the price of paper, printing cost, and a multitude of other factors. Similarly, the Postal Service can provide a comparison of costs before and after the FY 2015 price change, but cannot completely isolate the contribution of the price change from other factors, such as changes to mail preparation rules.

Assessing the impacts of the Docket No. R2015-4 pricing incentives is complicated by concurrent changes in mail preparation rules, such as the significant changes to the L004 labeling list. The L004 labeling list directs the mapping used to combine 3-Digit zones when building ADC bundles and containers. In May of 2015, the L004 labeling list underwent significant changes to better align ADC bundles and containers with Incoming Primary (IP) processing. With this change, the number of 3-Digit zones combined within a single ADC was reduced, causing the geographic area of a typical L004-defined ADC territory to be reduced. The impact of this change is largely responsible for the significant reduction in ADC pallets, and the growth of 3-Digit sacks, between Q2 FY2015 and Q2 FY2016. In Q2 FY2015, there were 57,008 ADC pallets. By Q2 FY2016, this number had been reduced by nearly two-thirds to 21,121. The mail from these pallets likely migrated to sacks and MADC pallets, contributing to the increase in the number of 3-Digit sacks from 894,217 in Q2 FY2015 to 1,043,462 in Q2 FY 2016. Because these two shocks, the L004 labeling list change and the Docket No. R2015-4 rates, occurred simultaneously, it is practically impossible to isolate the impact of each change from all other factors. Further complicating the analysis is that, in instances where changes to the price incentive structure are large and changes in known covariates are thought to be small, as is the case for piece weight and bundles, the mail characteristics indicate conflicting impacts from the incentive changes.

The Docket No.R2015-4 rates significantly increased the per bundle charges, apparently inducing a reduction in the number of bundles created. The price increase for bundles ranged from 26 percent (Firm bundles on 5-Digit containers) to 168 percent (ADC bundles on MADC containers). There was a contemporaneous reduction in bundle usage, with the number of bundles falling 9.7 percent, while piece volume only

declined 5.7 percent. This pattern is consistent with publishers choosing to make larger bundles in response to the increased bundle price.

There was also a significant reduction in pound prices, which would be expected to increase the average piece weight. However, the piece weight has declined. The Docket No. R2015-4 rates reduced the advertising and editorial pound charges by at least 14 percent, with the editorial charges declining at least 25 percent. Despite the reduction in weight-related charges, the trend of declining weight continued, with the average Outside County piece declining from 5.96 ounces in Q2 FY2015 to 5.83 ounces in Q2 FY2016.

Based on the above analysis, it appears that factors other than postage prices influence customers' production decisions. Therefore, the decline in bundle usage and piece weight cannot be attributed solely to price changes. The best quantitative measures, the aggregate impacts on revenue and cost, appear to be relatively minor.

Customers have had nearly a year to adjust to the Docket No. R2015-4 rates. To date, the changes induced by these rates have been modest. The comparison of Quarter 2 FY 2015 and Quarter 2 FY 2016 revenue-per-piece data provides the best available basis for evaluating the revenue impact of the Docket No. R2015-4 rates. These rates were implemented at the end of May 2015, partially through Q3 FY2015, so Quarter 2 FY 2015 is the last complete quarter under the previous rate regime. Quarter 2 FY 2016 constitutes both the most recent available data and the same seasonal period as the final period under the previous rate regime. Thus Q2 FY 2016 data provide a partial control for seasonal variation and reflect transitional adjustments to the Docket No. R2015-4 prices.

Periodicals Outside County Revenue per Piece[10]

	Revenue	Pieces	RevPerPc
Q2 FY2015	358,305,133	1,313,053,404	0.273
Q2 FY2016	343,860,967	1,237,849,978	0.278

[10] *See* ACD.Periodicals.Report Attach.xlsx, Tab: Decomposition, Rows: 194-195, electronically attached to this report.

Between Q2 FY2015 and Q2 FY2016, Periodicals volume decreased by 5.7 percent and revenue per piece increased by 1.8 percent. The decrease in volume over this period continues the volume decline experienced since 2008.[11] The increase in the revenue per piece is consistent with the overall CPI rate increase of 1.967 percent in Docket No. R2015-4.[12]

To the extent that it is possible to measure partial year cost changes due to a changing preparation profile, the cost changes between Q2 FY2015 and Q2 FY2016 are modest. The Cost and Revenue Analysis (CRA) is prepared at the end of the year, so with portions of FY2016 still pending, a comparison of FY2015 CRA costs with FY2016 CRA cost is not yet possible. However, even when a comparison of FY2015 and FY2016 CRA costs becomes possible after the end of the year, it will still be of dubious quality for assessing the impact of the Docket No. R2015-4 rate change. The annual CRA costs for FY2015 would include four months of costs under the Docket No. R2015-4 regime, and those for FY2016 would include cost changes unrelated to those rates, such as wage rates and operational processing changes. A reasonable cost estimate uses estimates of cost drivers (pieces, bundles, containers) from USPS-FY15-11 and delivery costs from USPS-FY15-19 (to provide costs weights), thus enabling a cost based comparison of the Q2 FY2015 and Q2 FY2016 preparation profiles.[13]

Preparation-Related Costs[14]

	Total Costs	Pieces	Unit Cost
Q2 FY2015	403,516,477	1,313,053,404	0.3073
Q2 FY2016	380,685,013	1,237,849,978	0.3075

[11] FY 2008 Outside County volume was 7.774 billion and FY 2015 Outside county volume was 5.267 billion. This implies a logarithmic decline of 38.9 percent (0.389 = ln(5.267/7.774)) or an exponential rate of decline of 5.56 percent.

[12] PRC-LR-2015-4/10, R2015-4PeriodicasICC.xlxs,tab Summary, cell F5

[13] Under this methodology, the estimated unit cost by driver (pieces by machinability and bundle level; bundles by bundle level and container level; containers by container level and entry level) are used as weights for the Q2 FY2015 and Q2 FY2016 preparation profiles as presented in the Billing Determinants. This cost weighting should not be construed as a complete cost estimate, as it excludes transportation, mail processing costs unrelated to preparations (such as PO Box distribution), acceptance costs, and forwarding costs, as well as non-piggybacked administrative costs.

[14] *See* ACD.Periodicals.Report Attach.xlsx, Tab: Decomposition, Rows: 194-195, electronically attached to this report.

Between Q2 FY2015 and Q2 FY2016, the preparation profile of Periodicals Outside County was influenced by customers' responses to the Docket No. R2015-4 price change, preparation rule changes (principally the L004 change), the continued decline in Periodicals mailed volume, as well as all other market influences. The rough measure presented above, however, suggests that the net cost consequence of all these changes may have been a modest 0.07 percent increase.

Since revenue per piece increased at a faster rate than unit cost, it appears that contribution is also increasing somewhat. Nevertheless, definitively attributing that change to the Docket No. R2015-4 pricing changes is not possible.

Directive Three

Pricing Leverage - *Provide a detailed quantitative analysis of the progress made in leveraging the Postal Service's pricing flexibility to improve the efficiency of Periodicals pricing in FY 2015.*

If customers wish to qualify for Periodicals rates, they must prepare mailings in compliance with rules specified in the Domestic Mail Manual (DMM). However, customers are given latitude and flexibility in the preparation process. A few container levels are optional. For pallet levels that are required, the creation of these required pallet levels is mandatory at 500 pounds, but optional at 250 pounds. Bundles are required at 6 pieces to a presort location, and cannot exceed 20 pounds. Customers are granted latitude to determine the largest bundle they wish to create within these bounds. As stated earlier, prior to implementation of the Docket No. R2015-4 rates, Periodicals pricing changes were generally across-the-board, and did not provide customers with efficient pricing signals.

The Docket No. R2015-4 prices moved container and bundle prices significantly closer to efficient component prices. Most of the pallet prices are set near estimated costs. Bundle prices are set near the estimated direct bundle handling costs.[15] With these prices, the Postal Service expects postage-minimizing customers to make preparation decisions that reduce mail processing costs more than under previous price designs. With eight entry locations, two container types, seven container levels, and

[15] See Docket No. ACR2015, USPS-FY15-3, Tab "Per. Bundle-Container Pricing".

seven bundle levels, it is impractical to demonstrate the superiority of the Docket No. R2015-4 rates for all possible permutations. An example, however, can show that these prices produce better postage minimizing preparation decisions than the previous price regime.

Consider the choice of whether or not to create a Carrier Routes (CRRTS) pallet with mail pulled from a DSCF-entered SCF pallet. The CRRTS pallet should be created when the costs of handling the additional CRRTS pallet ($38.259[16]) plus the cost of handling the bundles migrating to the CRRTS pallet (migrating bundles times cost per bundle, $0.318[17]) is less than the cost of handling the bundles on the original container (migrating bundles times cost per bundle on original container, $0.876[18]). Solving this equation for the number of needed migrating bundles yields the somewhat intuitive equation that the minimum number of migrating bundles needed is equal to the cost of the new container divided by the differential in bundle costs. In this case, the minimum number is 38.259/(0.876-0.318), which computes to 68.6 bundles. Stated another way, each migrated bundle saves (0.875-0.318) cents in mail processing costs, and when there are more than 68 bundles, the accumulated bundle processing savings exceed the cost of the created container. Under the previous rate regime, the postage minimizing customer would choose to make the CRRTS pallet if more than 154 bundles migrated, 22.881/(0.313-0.165[19]). In contrast, under Docket No. R2015-4 rates, mailers will choose to make the CRRTS pallet at 68 bundles – 19.023/(0.549-0.270[20]). The Docket No. R2015-4 rates are set to better align the decisions of the postage minimizing customer with the Postal Service's desire to minimize mail processing costs.

The Postal Service recognizes that weight influences mail processing cost. However, weight's impact is principally seen through its effects on the quantity of containers and bundles, and on piece machinability. Because there are weight limits for

[16] Docket No. ACR2015, USPS-FY15-11, Workbook "USPS-FY15-11 PER_OC.xls", Tab "Summary", Cell AN28.

[17] *Id*, Cell Z19.

[18] *Id.*, Cell V19.

[19] Notice 123, Effective January 26, 2014, Page 30, DSCF Entry 5-Digit Pallet, CR Bundles on CR/5-Digit Container and CR Bundles on 3-Digit/SCF Container.

[20] Notice 123, Effective April 10, 2016, Page 27, DSCF Entry CR Pallet, CR Bundles on CR/5-Digit Container and CR Bundles on 3-Digit/SCF Container.

containers and bundles, larger pieces will typically generate more bundles and more (albeit more finely presorted) containers. Heavier pieces are more likely to exceed machinability standards. Since the Periodicals rate structure already accounts for the quantity of containers and bundles, and the machinability of the pieces, the influence of piece weight is already accounted for in these prices.

For this reason, the Postal Service found it appropriate to reduce the editorial and advertising pound prices in Docket No. R2015-4, to remove both the disincentive on editorial content and the unnecessary penalties for advertising content. The Postal Service used Docket No. R2015-4 to increase the value of publications through the reduction in pound prices. While all pound prices were reduced, the editorial pound prices were reduced nearly 50 percent more than the advertising pound prices. The ultimate value to the final consumer of Periodicals mail is the quality and quantity of its editorial content. While the Postal Service cannot influence the quality of the editorial content, it can price the editorial content appropriately.

Directive 4

Obstacles – *Identify any obstacles to providing the requested analysis as well as the Postal Service's strategy and timeframe for addressing those obstacles. The Postal Service must provide steps it has taken towards overcoming the obstacles identified.*

The Postal Service views the above portions of this document as providing the requested analysis, and explaining the relevant obstacles. Consequently, the Postal Service incorporates its earlier responses, and does not identify any other obstacles.

2. Flats Costs and Service Issues:

- *In order to understand what can be done to improve cost and service efficiency for flats, the Commission directs the Postal Service to provide a report on flats issues within 120 days of issuance of this ACD. This report shall address, at a minimum, each of the pinch points described above [See FY 2015 ACD at page 165]. If the Postal Service identifies additional operational areas where it has developed, or intends to develop, measurement systems to comprehensively identify and resolve cost and service efficiency issues for flats, it shall provide such additional details. The Commission recognizes the importance of striking a balance between the value of utilizing systems to analyze granular data and the cost of using or developing systems to analyze said data. Where the Postal Service cannot leverage its current data systems to generate and analyze granular data, it should explain the process and expense involved to acquire and analyze such data.*

- *For each pinch point, the report shall identify a method to measure, track, and report the cost and service performance issues relating to the individual pinch point at the most granular level practicable. As part of this method, the Postal Service shall identify the service performance impact of the individual pinch point at the most granular level practicable. In order to increase transparency, the report shall contain the following information regarding the Postal Service's data systems for each pinch point:*

    - *Identify all information related to each pinch point operation that is generated by current data systems. Include all relevant existing data systems, such as IMb Service Performance Diagnostics System (SPD), Seamless Acceptance and Service Performance (SASP), Informed Visibility (IV), the Intelligent Mail Accuracy and Performance System (IMAPS), and any other systems not identified herein.*

    - *Provide a detailed analysis of the cost to produce and aggregate such data in a way capable of quantifying the cost and service impacts of each pinch point at the most granular level practicable. The cost analysis should include all development costs, as well as ongoing data maintenance and analysis costs, and include specific estimates of workhours required and the cost of those workhours.*

    - *Identify relevant information, in addition to current data, that could be developed by adjusting or expanding existing data systems and provide a detailed analysis of the cost involved for any adjustments or expansions needed to generate the information.*

    - *Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.*

- *If, as a result of the Postal Service's analysis, it finds the type of information requested cannot be developed using existing data systems, the Postal Service shall provide a detailed explanation why, supported by examples, for each pinch point the Postal Service contends is not measurable using existing data systems. The Postal Service shall also provide a detailed description of the type of data collection/modifications to existing systems that would be required and associated costs.*

RESPONSE:

The requested report is provided in the attached document.

REPORT REGARDING INFORMATION ABOUT FLATS DATA SYSTEMS

TABLE OF CONTENTS

I. INTRODUCTION 1

A. The Postal Regulatory Commission's Directive 3

B. Any Data System Improvements for Flats Must Align with Existing Systems and Operational Realities.. 7

1. Flats Cost Coverage and Service Performance Challenges.. 7

2. Designing the "Ideal Data System" is an Inefficient Use of Resources for Improving Cost Coverage and Service Performance for Flats.. 9

a. The Hypothetical "Ideal Data System" 9

b. The Real World of Postal Network Operations. 12

3. Providing the Detailed Analysis of Costs Envisioned by the Commission is Both Impractical and Inadvisable. 16

II. DISCUSSION OF FLATS OPERATIONS PINCH POINTS 21

A. Pinch Point One – Bundle Sorting Operations 21

Delay in Reaching the Initial Bundle Process. 21

1. Information Generated by Current Data Systems.. 22

2. Opportunities to Improve Current Data.. 24

Bundle Breakage. 25

1. Information Generated by Current Data Systems.. 25

2. Opportunities to Improve Current Data.. 30

B. Pinch Point Two – Low Productivity on Automated Equipment. 33

1. Information Generated by Current Data Systems.. 35

2. Opportunities to Improve Current Data.. 40

C. Pinch Point Three – Manual Processing. 45

1. Information Generated by Current Data Systems.. 45

2. Opportunities to Improve Current Data.. 47

D. Pinch Point Four – Allied Operations Cost and Service Issues. 51

1. Information Generated by Current Data Systems.. 52

2. Opportunities to Improve Current Data.. 56

E. Pinch Point Five – Transportation Operations. 58

1. Information Generated by Current Data Systems.. 58

2. Opportunities to Improve Current Data... 63
F. Pinch Point Six – Last Mile/Delivery. 65
1. Information Generated by Current Data Systems.. 65
2. Opportunities to Improve Current Data... 74

REPORT REGARDING INFORMATION ABOUT FLATS DATA SYSTEMS

I. INTRODUCTION

In its Annual Compliance Determination Report (ACD) for Fiscal Year (FY) 2015, the Commission identified cost coverage and service performance of flat-shaped products as particular areas of concern. The Commission noted that the attributable costs of two key products in this category – Outside County Periodicals and Standard Mail Flats – combined to exceed revenues by over $1 billion in FY 2015.[1] In addition, the Commission stated, the Postal Service failed to meet its service performance standards for flat-shaped products, despite the relaxation of several of those standards in recent years.[2] While acknowledging the wide range of operational initiatives the Postal Service has implemented to reduce flats costs and improve service performance, the Commission concluded that the results from those initiatives were insufficient. In the Commission's view, the Postal Service was not making effective use of available data to measure and track flats costs and service performance issues over time and to identify "root causes" for the problems.[3] The Commission therefore directed the Postal Service to submit a report focused primarily on sources of data, whether existing or new, that could be leveraged to improve the Postal Service's ability to recognize and address obstacles to improving service and efficiency in flats processing and delivery. In this regard, the Commission envisioned development of an "ideal data system" to better inform and ultimately improve flats cost coverage and service performance in future years.[4] A more detailed description of the Commission's directive is included in Section I.A below.

As an initial matter, the Postal Service is pleased to report that the strategies it described in the FY 2015 Annual Compliance Report (ACR) are now bearing fruit, and that delivery service performance for flat-shaped mail has significantly improved since

[1] Annual Compliance Determination Report, Fiscal Year 2015 (hereinafter "FY15 ACD"), PRC Docket No. ACR2015 (March 28, 2016), at 160.

[2] *Id.* at 162.

[3] *Id.* at 180.

[4] *Id.* at 181.

the ACR was filed and now exceeds the service performance that was being achieved at the time the changes were made to the operating window. The Postal Service understands that the impetus for the Commission's request for the instant report, in part, was its concern about the quality of delivery service experienced by flat-shaped mail in FY 2015, and the apparent intractability of the problem. In the FY 2015 ACR, the Postal Service explained that certain changes to its operating window, which impacted the schedules for nearly all mail processing and transportation activities nationwide, had contributed substantially to this situation. Service performance results declined in several categories (not limited to flats) in FY 2015, as the Postal Service worked to stabilize its operations under the new operating plan to meet both service performance targets and cost savings objectives across multiple products. As the Postal Service has consistently acknowledged, this fundamental shift in the operating window had a much greater impact on service than was anticipated, and took longer to recover from than had been hoped. It was, however, a one-time event that is not likely to be replicated. Moreover, the Postal Service has aggressively sought to address these service issues, and, as recent data confirm, those efforts are producing positive results. In that regard, it is noteworthy that FY 2016 service performance for flats, in general, has rebounded to levels above those reported in FY 2015 (with certain categories demonstrating particularly dramatic improvement[5]), calling into question the need for the present report, at least insofar as service issues are concerned.

Nevertheless, the Postal Service shares many of the Commission's concerns about costs and service for flat-shaped products. There is no doubt that Outside County Periodicals and Standard Mail Flats, in particular, have been among the most challenging products for the Postal Service to process and deliver profitably in the years since enactment of the Postal Accountability and Enhancement Act of 2006 (PAEA). Volume has declined precipitously as a result of the devastating recession, and as mailers shift to online or other methods of delivery; in the period between FY 2008 and

[5] Specifically, Standard Mail Destination Sectional Center Facility (DSCF) and Standard Mail Destination Network Distribution Center (DNDC) Flats.

FY 2015, for example, overall flats volumes decreased from 34.4 billion pieces to 21.5 billion pieces – a nearly 40 percent decline.[6]

The Postal Service does not disagree, in principle, with the Commission's suggestion that focusing on the six operational "pinch points" identified by the Commission could help identify barriers to improvement and opportunities for increased efficiency in flats processing. It is concerned, however, that the Commission's interest in obtaining ever more granular data points could shift attention and resources away from the efforts already underway to achieve sustainable improvements to efficiency and service performance for flats. The focus should be on maintaining and building upon the improvements we continue to see in terms of service while redoubling our efforts to maximize efficiencies.

In considering the information about data systems and sources that is provided in Section II of this report, and as explained more fully in Section I.B, the Postal Service respectfully requests the Commission to consider the concern that "more data" as a stand-alone objective cannot improve the efficiency or service performance of flat-shaped mail. What the Postal Service needs instead is "smart data." Factoring in the data sources that are already available, the unique challenges presented by flats products, and the overall statutory, financial, and network-related constraints under which the Postal Service must operate, the Postal Service's goal is to balance the costs and resources involved in capturing, maintaining, and retrieving relevant data against the practical realities of postal network operations across all of its products and services. In that regard, and as noted above, delivery service performance for flat-shaped products has already substantially rebounded, although further improvement is planned.

A. The Postal Regulatory Commission's Directive

In Chapter 6 of the ACD, the Commission analyzes flats operations by identifying six "pinch points" as sources of impediments to better service and efficiency. In directing the Postal Service to prepare this report, the Commission seeks to refine its understanding of "what can be done to improve cost and service efficiency for flats,"

[6] FY15 ACD at 178 & Table VI-7.

within the context of the six pinch points.[7] As noted by the Commission and acknowledged by the Postal Service on many occasions, improving service and promoting efficiency in flats operations are longstanding goals that have encountered complicated and stubborn obstacles. As the Postal Service understands the Commission's objectives for this report, it would like to explore opportunities to employ existing data, or develop new sources of data, that will illuminate the specific obstacles at each of the operational pinch points, and, assuming that solutions to overcoming the identified obstacles are found, ideally lead to more efficient, timely processing and delivery of flats mail. It is worth noting in that regard that recent improvements in service have resulted, in part, from the continued use of available data.

For the report, the Commission identifies its specific requests in four bullets, and directs the Postal Service to provide the information requested for the six sources of operational inefficiencies ("pinch points") it identifies.[8] According to the Commission,

> [T]he report shall contain the following information regarding the Postal Service's data systems for each pinch point:
>
> - *Identify all information related to each pinch point operation that is generated by current data systems. Include all relevant existing data systems, such as IMb Service Performance Diagnostics System (SPD), Seamless Acceptance and Service Performance (SASP), Informed Visibility (IV), the Intelligent Mail Accuracy and Performance System (IMAPS), and any other systems not identified herein.*
> - *Provide a detailed analysis of the cost to produce and aggregate such data in a way capable of quantifying the cost and service impacts of each pinch point at the most granular level practicable. The cost analysis should include all development costs, as well as ongoing data maintenance and analysis costs, and include specific estimates of workhours required and the cost of those workhours.*
> - *Identify relevant information, in addition to current data, that could be developed by adjusting or expanding existing data systems and provide a detailed analysis of the cost involved for any adjustments or expansions needed to generate the information.*

[7] *Id.* at 181.

[8] The Postal Service acknowledges that the Commission asked that it provide the requested information for the six pinch points, at a minimum; however, at this time, the Postal Service "has not identifie[d] additional operational areas where it has developed, or intends to develop, measurement systems to comprehensively identify and resolve cost and service efficiency issues for flats."

- *Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.*[9]

In Section II of this report, the Postal Service addresses the relatively straight-forward request in the first bullet by identifying, by pinch point, numerous existing systems and programs used for developing and analyzing data. Many of these sources are actively employed at various levels of the organization to monitor, evaluate, and improve daily operations.

The second and third bullets appear to embody overlapping requests. Read together with the language in the paragraph immediately preceding the bullets,[10] the Postal Service interprets bullet two as encompassing two inquiries. First, the Commission seeks to understand how the Postal Service could use existing data to "quantify[] the cost and service impacts of each pinch point at the most granular level practicable." Second, the Commission appears to request that the Postal Service estimate the cost that it would incur to aggregate and analyze existing data to accomplish that objective.

In the third bullet, the Commission appears to seek identification and assessment of systems and programs capable of producing and analyzing data and information not currently developed. The purposes of these data would be consistent with the objectives sought in the second bullet. Because of the similarities between the purposes and uses of data sought in bullets two and three, we will address both of these items in the same discussion, under the heading "Opportunities to Improve Current Data," rather than as discrete bullet points.

At the outset, in considering the usefulness of any data system, it is important to understand the complexities involved in operations at each pinch point. In order to evaluate the cost and service impact of operational failures or deficiencies, as requested under the first inquiry of the second bullet, the Postal Service must first

[9] *Id.* at 181.

[10] "For each pinch point, the report shall identify a method to measure, track, and report the cost and service performance issues relating to the individual pinch point at the most granular level practicable. As part of this method, the Postal Service shall identify the service performance impact of the individual pinch points at the most granular level practicable." *Id.* Because bullet two speaks of both the service performance and cost impact of the pinch points, the Postal Service views the absence of "cost" in the second sentence as an inadvertent omission.

identify what "failure" means at any given pinch point, and at each of the activities encompassed by that pinch point. From both service performance and cost impact standpoints, in order to define "failure," the Postal Service must also define "success." For most of the pinch points, this implies standards or goals for each activity in the pinch point, or, in the Commission's terms, the need to define what "maximum efficiency" would be.[11]

In this regard, maximum efficiency cannot be an abstract concept, unrelated to the operational environment and a variety of financial and other constraints in the real world. For example, with regard to the pinch point of allied activities, should the Postal Service identify exactly how much time it should take to offload a pallet from a truck? That might seem relatively easy to do in the abstract, using common engineering standards. But, the efficiency of that operation in practice cannot be assessed without knowing other facts, such as the location of the staging area or opening unit where that pallet would be broken, which could be close to or far from the platform, depending on what is on the pallet, whether the pallet is being cross-docked or its contents disaggregated at that facility, and most importantly, when considering the cost impact of the efficiency of that operation on individual pieces, how many pieces of mail should be on that pallet. The correct values of those variables (which are, admittedly, a small subset of the total number of variables for what is only one tiny example of the range of activities encompassed in the broad category of allied activities) could vary by facility, by type of mail, and by operating conditions. But, even if ideal conditions could be identified, would the failures be measured and their financial impact quantified relative to the ideal conditions for each facility, or against a national target? It quickly becomes apparent that the ideal state could be a purely theoretical and highly elusive concept. The inherent difficulty of the Commission's request under the first inquiry of bullet two notwithstanding, the Postal Service is providing a response to the extent it is able to do so.

In the fourth bullet, the Commission seeks a description of all information that could be used to "develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal

[11] *Id.* at 165.

data system were available." The utility of this inquiry is unclear, in light of the more realistic goals of employing and improving existing data systems embodied in bullets two and three. Furthermore, the development of a comprehensive plan cannot be undertaken without a complete understanding of the specific "impacts" arising from each pinch point. Nevertheless, to the extent it can, the Postal Service will attempt to address the general concepts involved in an "ideal" data regime. We will include this discussion in Section I.B.2, rather than addressing the "ideal" under each pinch point.

In Section II, the Postal Service will try to discuss the issues the Commission is seeking to illuminate as objectively as possible. It bears remembering, however, that the utility of its analyses must be evaluated in a real-world context.

Finally, we must qualify the current report with regard to the Commission's expectations that the Postal Service would be capable of providing specific estimates of the expenses that would need to be incurred to analyze existing data, improve existing data systems, or create new sources of data (see the second and third bullets). For several reasons, the Postal Service has concluded that specific cost estimates are not feasible at this time. Most fundamentally, fully developed cost estimates are not possible without an explicit identification of particular uses, changes, and additions to existing data and systems. As the Commission will see from the discussions of existing and potential data at the various pinch points, there are many sources of data and uses already being employed in relation to various operations and administration. Sifting through the current landscape to develop a comprehensive plan will require a study effort that could not be accomplished within the time available for the current report. In this regard, the Postal Service expects that the Commission's reaction to this information will be a significant contribution to subsequent efforts to reach the beneficial goals outlined in the Commission's pinch point analyses. In this report, we will address these issues in Section I.B.3.

B. Any Data System Improvements for Flats Must Align with Existing Systems and Operational Realities.

1. Flats Cost Coverage and Service Performance Challenges.

The challenges facing flat-shaped products are long-standing and complex, notwithstanding the recent significant improvements to service. To be sure, the Postal

Service cannot simply abandon a poorly performing product line: it has a statutory obligation to provide, as "a basic and fundamental service" to all U.S. communities, "postal services to bind the Nation together through the personal, educational, literary, and business correspondence of the people."[12]

While it is beyond the scope of this report to examine in detail how the statutory framework affects the performance of particular classes of postal products, the challenges to improving service and operational efficiency should not be underestimated. Flat-shaped mail is part of a broad array of products the Postal Service offers, and it necessarily must share certain processing and delivery resources with other product lines. Given the nationwide scope of the Postal Service's delivery area, operations are spread out in offices and processing centers across the country, all of which must collaborate to keep, not just flats, but also letters and parcels, moving out efficiently, and meeting on-time service targets to the greatest extent possible. On any given day, volume, mailer activity, personnel changes, seasonal variations, and other factors may impact processing at a given postal facility. All of these operations are interrelated parts of a whole.

The Postal Service has actively pursued a mail and package visibility strategy to help keep mail as a cost effective, relevant form of communication and delivery service for the nation, consistent with its statutory obligation to provide universal service. In general, the various programs and initiatives implemented are designed to help increase operational efficiency, reduce costs, create opportunities for new products and services, and help measure and improve service, across all products.

Full Service Intelligent Mail barcodes are a key initiative and milestone in this strategy. With respect to visibility and service, when deployed accurately and with compliance, Full Service IMb enables the unique identification of mail (containers, trays, bundles, and pieces). When combined with key elements in electronic documentation (eDoc), unique identification enables the Postal Service to facilitate the measurement of service performance for market dominant commercial presort mail. Additionally, it enables the Postal Service to provide greater visibility on mail movement through containers and trays.

[12] 39 U.S.C. § 101(a).

The new Informed Visibility (IV) system is another milestone in the strategy of leveraging data in near real-time to measure and diagnose service, predict workload, and manage inventory, while providing near real-time tracking of mail. But these initiatives cannot be deployed overnight. Deployment, as well as industry adoption, will take time and additional effort.

After the Commission issued the ACD earlier this year, Postal Service senior leadership met with a group of industry leaders to gather input and generate ideas designed to assist the Postal Service in measuring cost and service performance, tracking key metrics, and meeting service performance targets for flats. Some of the ideas discussed during the session either were already or are currently in development, and others are being evaluated in more detail. As mentioned above, many of the service problems encountered by the Postal Service were the result of a "one time" event that the Postal Service has diligently worked to correct – with positive results that are evident from recent data. Notwithstanding these improvements, the Postal Service is committed to working with the Commission, and its customers, to improve the outlook even further for flat-shaped mail.

2. Designing the "Ideal Data System" is an Inefficient Use of Resources for Improving Cost Coverage and Service Performance for Flats.

a. The Hypothetical "Ideal Data System"

The Commission's directive asks the Postal Service to identify "all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available."[13] As an initial matter, and as noted above, the Postal Services submits that its current data systems are sufficient to enable substantial delivery service improvement, as evidenced by the recent service improvement trends which have resulted in delivery service performance which now exceeds that which was being achieved before the operating window change.

If the Postal Service were to design a hypothetical "ideal data system" to capture information about flats costs and service performance, from the ground up, it would

[13] FY15 ACD at 181.

seek to capture information about every mail piece processed through each operation.[14] An ideal data system would allow management to define desired operational flows for all mailed items through every facility configuration, detect deviations from the desired flow and allow the immediate rerouting of the errant piece and/or container, identify the cause of the piece or container being on the incorrect path, and measure time expended on each activity within an operation, including the cost of the rework required for the errant pieces/containers. In order for this hypothetical system to effectively improve costs and service, it would need to be usable for identifying and then preventing the root causes of the failures.

In an ideal data system, every operation would be capable of detecting every mail piece processed. Detection could be in the form of direct piece observation such as a barcode scan of individual pieces, or by nested detection, the detection of an item, such as a bundle or tub, or container, such as a wiretainer, hamper, APC or pallet, containing individual pieces. In addition to detection, the ideal system should be able to inform on the disposition of each piece handled in the operation, that is, whether the piece was successfully handled or not and where (meaning what future operation or container) the piece was sent. The ideal system would be able to inform management when pieces are diverting from the desired/intended flow and should give management insights into the cause of the failure (bundle breakage, miss-sortation, machine failure, etc.), so the process can be corrected.

Equally important as ensuring the proper flow of mail would be informing management of the efficiency of each operation. Apart from indicating the costs by operation, an ideal system would inform management on the component activities within each operation. Currently, through the Management Operation Data System (MODS), the Postal Service can quantify the labor time consumed in each operation, but this system does not inform management of the time consumed by activities within operations. Each operation is composed of a set of activities within the operation. For example, the mechanized bundle sorting operation could be broken down into:

[14] While it seems fairly obvious, it bears noting that for such a data system to be "ideal," among the items of information reliably captured for each piece would need to be the exact rate category into which that piece was entered, thus reflecting the postage that piece actually paid.

- Operation Setup – Obtaining rolling stock for runouts, placing rolling stock at runouts, placarding rolling stock
- Mail Supply – retrieving mail from staging areas and bringing mail to feeding stations
- Feeding – dumping containers of mail
- Sortation
- Operation breakdown/dispatch.

For some of these activities, the time consumed will vary with processed volume (feeding, sortation, mail supply), while others are largely independent of processed volume (Operation Setup and Dispatch). Hence, the Postal Service uses the In-Office Cost System (IOCS) to identify the range of activities within each MODS operation. Without measurement of time consumed by activities within the operation, the causes of inferior productivities/efficiency cannot be identified and addressed. By having measures of labor time consumed by each activity, postal management could distinguish between operational productivity changes that require intervention, such as slow feed rates, and events, like decreases in processed volume or decreases in density by container or bundle, that are beyond the Postal Service's control.

In order to support development of a comprehensive plan to improve flats service performance and cost coverage, an ideal system would be a network of seamlessly interconnected systems that would gather, analyze, and provide data reporting for each operational step in the mail processing flow, for each plant and delivery post office. Such a system would need to provide robust visibility into activities and potential issues at each pinch point at a granular level for all automation and manual process steps. It would leverage advanced methods such as radio-frequency identification, improved optical character readers, and other technologies designed to recognize, capture, transmit, store, and analyze information reliably. While real-time intervention to improve service and reduce cost is a laudable goal in itself, ideally, reviews of historical service performance and root cause diagnostic data could also be used to measure trends over time and to make comparisons between districts, facilities, and types of mail. In order to fix service performance issues associated with a particular problem (for example, bundle breakage), the data would need to allow for a more predictive analysis, so that

problems could be prevented or corrected early enough in the process to meet service standards.

Finally, an ideal data system would necessarily have to be complete and reliable, but also easy to feed, meaning that the data elements would need to be automatically collected into the system, without human action required and in a tamper-proof manner. The objectivity and accuracy of the information should be beyond reproach. Every postal data system and its associated data would be network-connected, allowing them to constantly send and receive data, and to constantly create and provide a predictive aggregate of each other's data to a granular level ("internet of things"); and those data and information would be made available to supervisors and employees in a way that enables them to calculate and pursue the optimal balance of cost savings and service performance in any given situation. In addition, the system could not require human intervention that would distract the postal employee from what should be his/her primary task: to process, transport, and deliver the mail according to expectations. In other words, the primary job of the postal employee – including supervisors and other personnel – should be to handle the mail, not to feed data systems. In an ideal system, it should be easy to obtain the data without adding to the workload of postal employees.

b. The Real World of Postal Network Operations

Despite the benefits a hypothetical "ideal data system" might bring, the Postal Service must of course take into consideration the network operations infrastructure and data systems that already exist in the "real world." Postal Service operations are extremely complex. The Postal Service relies on hundreds of thousands of employees of various skill levels and capabilities to process enormous volumes of diverse types of mail through various automated and manual processes, across thousands of facilities. As noted above, an ideal data system must be capable of predictively analyzing the diverse circumstances under which a given pinch point can arise, and the various ways on-the-ground postal personnel might respond to the situation. At the same time, however, the system must be such that it does not overwhelm the postal personnel. It is neither realistic nor desirable (from a cost or service perspective) for employees to clock in and out of every specific activity they are actually performing (which would be necessary to identify/assign time spent handling broken bundles, for example). Their

focus should be on ensuring that mail flows smoothly on the correct path; if they are constantly getting "alerts" of failures regarding individual pieces or containers, their attention will be diverted from their tasks at hand, and/or "alert fatigue" may set in, and the value of the alert system thus degrades. In other words, not every alert should trigger a fire drill; but perhaps an alert could sound when a pallet that is bound for Atlanta is being erroneously loaded onto the truck bound for Seattle.

It is also worth noting that the Postal Service handles billions of pieces of mail every year. The Postal Service would be the first to proclaim the value of all mail, but it must be said that relative to other components of the economy (when considered on a unit basis), consideration must be given to the cost of identifying and righting the path of the errant piece or container of mail weighed against the possible disruption of the overall mail flow. In a facility that produces automobiles or computer equipment, it may be desirable to have a "kill" button that stops the production line to allow a quality control problem on an individual item to be immediately addressed. But in the postal environment in which the average per-piece attributable cost is less than 30 cents, and average per-piece revenue less than 45 cents, it probably does not make sense to halt operations to correct the flow for an individual piece or even a container.

Moreover, mail processing plants vary in the quantity and types of mail processing technology available. Some plants are equipped with the most advanced equipment available, while other plants, due to the low volume and low population density of their service territory, may have no mechanized equipment for some types of mail. The territories that they serve and the component zones within each plant's service territory differ in geography and population density. Some zones are densely populated, with customers located geographically close to the processing facility. Other zones are sparsely populated, with customers located great distances from the facility. The characteristics of the processing facility and the destination zone combine to determine the desired processing flows of mail for each zone through the facility. It goes without saying that these flows need not and will not be the same for facilities with different geographic and population characteristics, nor will these flows be identical for each zone handled by the individual plant. Plants equipped with Flats Sequencing System (FSS) will process high volume zones on the FSS but may, for service standard

and cost considerations, choose to manually process mail for low volume distant zones. Further, the operational flows of non-machinable mail will necessarily differ from those for machinable mail. The ideal data system would enable management to define the desired operational flow for each zone and type of mail and identify when mail deviates from this operational flow.

As the discussion above suggests, it may not be necessary, efficient, or even desirable to have full data on every piece of mail, particularly if the acquisition of the data requires human intervention in the workroom environment. Even a diagnostic system that alerts postal personnel when a piece or container is on the wrong path may not be desirable if the incorrect path is a random and rare event; identifying systemic failures, pinpointing and eliminating the causes should be the goal. Nor would vast amounts of data necessarily translate into Postal Service employees moving the mail through the mail stream being able to use it on a day-to-day basis. The data would need to be highly customizable for different use cases; for example, a data analyst stationed at Headquarters uses data differently than a delivery unit supervisor or other field employee whose primary objective is moving the mail through the Postal Service network.

The ACD directs the Postal Service to identify methods to report cost and service performance issues for each "pinch point" at "the most granular level practicable." In doing so, the Commission recognizes the existence of tradeoffs between the cost and value of generating and utilizing additional data related to the pinch points. Generally, the most cost-effective, highly-granular data collected by the Postal Service are generated passively in the course of pre-existing postal operations, such as piece counts and barcode scan data generated by automated mail processing equipment.

In contrast, costly additional activities would be required to produce more granular data in many operational areas. For instance, obtaining direct counts of pieces in manual processing activities would require implementing new data collection processes beyond the productive activities. As another example, better aligning work hour data with activities would require employees to more frequently re-clock among operations. Indeed, the pinch points tend to implicate operational areas and/or data issues where mail is not successfully captured in passive systems, as when barcodes

are not successfully scanned, or the technology for passive data collection systems may be envisioned but is not currently cost-effective.

More fundamentally, reducing costs and/or improving service issues related to the pinch points with additional, more granular data requires that the data be actionable for establishing—or better implementing—more efficient operating plans for flats. At a broad level, the current system encourages mailers to produce automation-compatible mail that the Postal Service directs to automated processing equipment; the vast majority of flat piece sorting is, in fact, automated. Manual sorting serves as a backup for automation-compatible pieces that cannot be successfully processed on automated flat sorters and a primary processing mode for non-machinable flats. As a practical matter, cost or service improvements will be incremental refinements within this system. Even with current data, and more developed and granular data, cost and service are affected by factors that will not be captured in the data, such as the terms of labor contracts, weather/other natural phenomena, constraints dictated by geography, and local conditions more generally. As one example, increased mail piece visibility alone would not elucidate the absolute cause of cost coverage or service performance issues.

Based on the Postal Service's observations of existing granular data, it would be reasonable to expect that reliable, highly granular data would show wide variations within mailings (let alone products or more narrowly-defined rate categories); across facilities and other units of postal geography; and from day to day. Operating plans that would adjust dynamically to all of the cost and service variability that hypothetically could be measured may be much more complex than current practices. The nature of both postal and mailer operations in many ways forecloses highly complex, dynamic operating plans that would adjust dynamically to all of the cost and service variability that hypothetically could be measured. Limitations on differential pricing and/or ability to limit service to high-cost areas also can constrain the potential uses of highly granular data.

In the short run, postal operating plans are relatively fixed. Processing network configuration, including automated equipment present at plants, is relatively fixed in the near-term. Relocating or reconfiguring equipment and facilities is costly. In the longer

term, major facility and network changes are subject to detailed study to determine whether the related investments have an expected payoff.

Improved data and metrics at the national level may simply convey information that already exists at the local level, where local supervisors and managers have lines of sight into local cost and service issues. Centralized, highly granular data requires separating controllable factors that may affect plans from a wide variety of uncontrollable factors, such as local geography and general business conditions, weather and other natural phenomena, statutory requirements, and constraints related to labor contract terms. Conversely, vast quantities of data may not be usable at the field level even if the data are otherwise reliable and timely. Regardless of the quantity of granular data collected, in light of operational realities, the appropriate levels of aggregation and dissemination for efficient use merit consideration and would have implications for both the design and the cost of a new system.

3. Providing the Detailed Analysis of Costs Envisioned by the Commission is Both Impractical and Inadvisable.

The Commission directs the Postal Service to provide a "detailed analysis" of the cost it would incur to produce and aggregate data sufficient to quantify the cost and service impacts of each pinch point identified by the Commission "at the most granular level practicable," including both development costs and forward-looking maintenance and analysis costs. In addition, the Commission requests a detailed analysis of the cost involved in making "any adjustments or expansions needed" to generate the information the Commission argues is needed.[15]

In responding to the Commission's requests in this report, the Postal Service has made a good faith effort to list and describe as many as possible – if not the totality of – the existing data systems that could be relevant to identifying the causes of service failures and cost changes, and opportunities for improving service and product costs based on the causes identified. The Postal Service has, further, attempted to identify opportunities within each of the pinch points to indicate possible changes to data systems that would begin to breach what are perceived to be the gaps in the data that

[15] FY15 ACD at 181.

would prevent the efficient use of those data to identify and improve or quantify the loss associated with lack of improvement. However, at this point, neither the Postal Service nor the Commission has a full grasp of the range of data that would be necessary to identify all causes of service and efficiency failures, much less the cost of creating such a system.

One might argue that there is a "chicken and egg" situation here. In order to resolve longstanding efficiency (high cost) and service performance issues, it might be logical to assume that it would be necessary to catalog the entirety of postal operations to identify not only in which operations, but also in which activities, there are situations causing "failures" that could, in turn, result in service performance disruptions or unnecessarily high costs. But the "failures" may turn out to be a very small set of circumstances, or in a small number of activities, or in activities notoriously difficult to measure, which means that collecting data on every piece in every activity in every operation in every facility is neither necessary nor productive. In fact, there is a very real possibility of missing an immediately relevant data point if users become overwhelmed by the sheer scope and volume of data available. More focused efforts in collecting data specifically targeting the failures would be a more efficient use of resources. But to do so, it is first necessary to know where those failures occur; hence, the circularity of the situation.

Estimating specific costs required to analyze existing data, supplement or modify existing data systems, or develop new sources of data or programs is premature, and attempting to do so without a clearer understanding of what is needed would be very difficult and inefficient or wasteful. This is an exercise that would be more reasonable once the Postal Service has a firmer grasp of the range of the activities, behaviors, or characteristics that would be driving the failures. The Postal Service understands and recognizes there may be gaps in mail and package visibility, for example, that may limit the use of the systems currently deployed and/or in development in identifying and measuring the impact of root causes of failures. The expectation is that as the existing systems evolve and data gaps are identified – but more importantly as the root causes of failures are identified – solutions to close these gaps and focus data collection on the

trouble spots will also evolve. The recent positive trends in delivery service performance are evidence that this expectation is in fact being realized.

Complicating these efforts is the necessity to drill down below the national picture to local situations. Quite possibly, the causes of service or efficiency failures are universal, but more likely, they are related to local failures to follow protocol, or to local transportation issues or plant configurations, or to particular mailers and their characteristics, or to other situations that are not uniformly causative. As the Commission has often lamented, sometimes national data are not sufficiently robust to lead to confidence. Going below the national level introduces even more opportunities for mismeasurement, misreporting, or misinterpretation, much less offering the opportunity for a systematic review and determination of root causes and how to fix them. To cite an example based on existing systems, whereas MODS might simply indicate the operation number into which an employee is clocked, IOCS might be able to determine what type of mail is being handled (product as well as piece vs. bundle, for example) and what type of handling occurs. The IOCS readings provide insight, but at a national level. It would be neither feasible nor efficient to expand IOCS to provide robust pictures at local levels or more frequently than on an annual basis. More importantly, it would not be practical to use a system such as IOCS to identify the specific, local, timely failures and then to quantify the improvements following a program change.

It is entirely possible that the data systems that would be needed in order to identify, measure, and target the root causes of all failures would be far more narrowly-focused than collecting data nationwide on every operation. But regardless, the cost of designing, deploying, feeding, and maintaining the system must be balanced against the perceived gain to be derived from the system. For example, what effort would be required of field personnel to gather and enter data, and what would be the quality of the data collected? As is discussed more thoroughly elsewhere in this response, allied activities and manual activities remain the areas which are the least standardized and least visible. It is extremely difficult to quantify the pieces flowing through these operations and to tie the time and costs of particular activities to the overall time and costs for those pieces. In the absence of standardization, or clean methods for

measuring the pieces and times and efficiencies of each activity in an automated manner, human measurement, which is to say human resources, will be required. (Some systems anticipate using assumptions in order to map mail through such operations, but by definition, assumptions will not permit identification of the root causes when the mail encounters a nonstandard, i.e., unexpected and nonmodeled experience.)

Moreover, in order to estimate the costs of all failures, or to track the cost impact of programs designed to address those failures, the Postal Service would need to identify the baseline costs by activity and compare the actual costs to the baseline. Failures and successes would have to be defined, identified, and quantified. After opportunities for improvement have been identified and addressed, the success of any improvement program would have to be tracked, comparing the before and after scenarios. This would be challenging to define given the seasonality in postal operations, the ever-changing mail mixes, and other mitigating circumstances. The systems currently used to develop national annual costs would be inadequate for such an assessment.

Again, returning to the chicken and the egg, it may be that designing, deploying, feeding, maintaining, and cleaning the data from a larger system provide no better insights than are obtainable from existing systems, and the existing systems are already showing substantial improvement in delivery service performance. Establishing an estimate of a return on investment from expanded data systems is difficult because it would be presupposing the value of the additional data to be obtained. Again, the assumption is that data would identify the problem and that the problem would be easy to fix; hence, the value of the data. But what if the data identify that the problems are overwhelmingly the result of decreasing densities due to overall volume declines, or inflexible union rules, or inadequate mailer cooperation? Was it necessary to collect data on such a granular level in order to make that determination? At this point, it is not clear what the new systems would be or what commitment would be required from field employees in terms of their participation and accountability for gathering data not easily obtained from equipment.

In recent years when capital for investment projects – even those as obvious as the belated replacement of postal Long Life Vehicles – has been scarce, consideration of the expected return on investment has had to overrule academic curiosity. The Postal Service follows a rigorous capital investment process. This initiates with an ideation process looking at potential options and relative estimated costs to allow senior postal management to offer insight on the proposed options and/or additional elements that should be considered. Once an initiative has been approved through ideation, a detailed Decision Analysis Report (DAR) is prepared, complete with all verified costs to help the organization understand the total cost of a decision. This detailed analysis also enables the Postal Service to determine if there is a return on investment and at what point in the life cycle of the investment that return can be obtained. It is through this rigorous process that the Postal Service has been able to make solid capital investments, albeit at substantially decreased overall levels over the last several years in view of its precarious financial condition.

In the world of government procurement, it would be unwise to be too specific publicly about the cost of purchases that the Postal Service might ultimately decide to pursue through a competitive bidding or contract negotiation process. Among other potential risks, it is possible that the Postal Service's estimate of potential cost could be much higher than technical service providers would otherwise be inclined to bid if a Request for Proposals to develop system improvements of the nature discussed in this document were proffered. Disclosure of such information would, to the economic detriment of the Postal Service, incent the submission of contract bids from potential service providers at much higher prices and profits than might otherwise have been obtained in the absence of such disclosure, or otherwise deprive the Postal Service of leverage with which to negotiate a sole-source contract at the lowest possible price.

In short, considering the rigorous process the Postal Service uses to make investment decisions, it would be irresponsible to respond to the inquiry regarding the concept and cost of unspecified systems, whether futuristic or hybrid (i.e., leveraging existing strategies and systems), at this time. It would require a significant level of effort in itself to identify all the potential options, determine the best option to move forward, and capture all the needed costs, including technology and labor costs, for visibility on

all products across an organization that has hundreds of thousands of employees, utilizes thousands of pieces of mail processing equipment across numerous facilities, and processes billions of pieces of mail on an annual basis.

II. DISCUSSION OF FLATS OPERATIONS PINCH POINTS

A. Pinch Point One – Bundle Sorting Operations

The first pinch point that the Commission identifies in Chapter 6 of the ACD is bundle sorting operations. As described by the Commission, this pinch point has two components: (1) the movement of bundles to a bundle sort operation, and (2) the bundle sort itself. With respect to the first component, movement to the bundle sort, the Commission identified "time delay between arrival of palletized flats and the initial bundle process"[16] as the relevant "obstacle to improving cost coverage and service performance for flats."[17] This can also be considered part of the Postal Service's allied operations, which itself constitutes one of the six pinch points identified in Chapter 6 of the ACD. With respect to the second component, the bundle sort, the Commission identified bundle breakage as the relevant obstacle.

Because this pinch point implicates two distinct sub-issues – delay before the primary operation begins, and breakage – the Postal Service responds to the Commission's directive by addressing each separately below. Bullets one through three of the Commission's directive are addressed for the first sub-issue under the heading "Delay in Reaching Initial Bundle Process." Bullets one through three are addressed again for the second sub-issue under the heading "Bundle Breakage."

Delay in Reaching the Initial Bundle Process

The first sub-issue implicated by the bundle operations pinch point is delay between the time that mail is inducted and the initial bundle sort. The Postal Service's visibility into the flats-specific cost and service impacts of its allied operations is limited by the nature of allied work. These limitations are discussed in detail in Section II.D, Allied Operations Cost and Service Issues.

[16] FY15 ACD at 167.
[17] *Id.* at 165.

Delay at this stage affects flats service performance when it causes mail to fail applicable service performance standards. Various factors can affect the timely movement of mail to the initial bundle process. These include the use of paper-based drop-shipment forms, which require time-consuming manual intervention by postal employees in order to process drop-shipment arrivals, as opposed to electronic documentation (eDoc); the yard management of drop-shipment appointments, in particular at high-volume postal facilities; dock assignment and staging for drop-shipment appointments; and the timely unloading of drop-shipment mailings.

1. Information Generated by Current Data Systems

Information gathered at this stage is processed by the Facility Access and Shipment Tracking system (FAST), which the Postal Service uses to document, monitor, and manage drop-shipment appointments; the Transportation Information Management Evaluation System (TIMES), which the Postal Service uses to manage its surface transportation; and the Yard Management System (YMS), which the Postal Service uses to manage yard operations at Network Distribution Centers (NDCs). The Postal Service also gathers information via Surface Visibility (SV), a mobile-scanning application through which employees use handheld mobile devices to scan barcodes on trailers, handling units, and containers as mail moves through the mailstream. The SV system tracks the movement of mail in the dispatch and transportation process by linking those scans to create origin-to-destination visibility.

Currently, the Postal Service has various points of visibility into the timeliness of the mail acceptance and induction processes. These are:

- Total number of drop-shipment appointments scheduled for a particular facility. Appointments can be inputted into FAST by the mailer or by the facility.
- Scheduled arrival time of a given drop-shipment. This information is maintained in FAST.
- Actual drop-shipment arrival time. This information is recorded through manual scanning, and is fed into FAST and SV. At NDCs, this information is processed by YMS.
- Dock arrival time. This information is recorded through manual scanning.
- Initiation and completion of the trailer unload process. Each is recorded through

manual scanning.

- Mailer-reported incoming mail volume. This information is recorded in the mailer-submitted drop-shipment documentation, including eDoc, and is used for purposes of FAST. While this information helps managers anticipate potential workload to some extent, it does not give a complete picture of incoming mail volumes because not all flats mailers are required to schedule FAST appointments.
- Actual number of containers unloaded. This information is recorded through manual scanning, and is fed into TIMES.

In addition to the data identified above, the Postal Service also uses work in process (WIP) metrics that are available to managers in the form of WIP cycle time reports, via the Service Performance Diagnostics (SPD) tool. The SPD tool leverages data from Business Intelligence Data Store (BIDS) and the Seamless Acceptance and Service Performance System (SASP), which are backend systems used for the purpose of Service Performance Measurement. SASP takes mailing information from PostalOne!, data from SV and FAST showing actual entry time, and scan data collected by automated equipment to perform service performance calculations. SASP then sends the aggregated data to BIDS, which aggregates the data further. SPD accesses the data from those systems to generate reports that can be used to help diagnose service issues.

WIP reports show the median hours between the actual entry time and the APPS/APBS bundle scan for Standard Mail flats entered with a Destination Sectional Center Facility (DSCF) entry discount. Similar data are available for mail entered at Origin, mail entered with an Area Distribution Center (ADC) or a Destination Network Distribution Center (NDC) entry discount, and also for Periodicals. Data are available at both the national and facility levels. There are other WIP metrics available as well. For example, another WIP metric shows the time elapsed from the actual entry time to the initial automation piece level scan. These statistics are calculated for Full Service mail that is in service performance measurement.

The data described above allow the Postal Service to measure the amount of time that passes from the arrival of a drop-shipment to the initial bundle sort, as well as

various segments in between, such as time elapsed between when a truck arrives and when it is unloaded, the amount of time it takes to unload a specific mailing, or how long the truck was staged in the facility yard. These data also let the Postal Service see the actual number of pallets unloaded at a given site in comparison to what the mailer reported when scheduling the appointment.

The Bundle Visibility program is another source of information that provides some visibility into allied and other mail processing operations. The Bundle Visibility program leverages scan data collected from carrier route bundles at mail processing plants and delivery units. These data are used to compile reports that are currently focused primarily on scanning compliance to ensure that the data available are complete enough to provide analytic value. However, the Postal Service has been able to use Bundle Visibility information to track where carrier route bundles are actually located in the process, from acceptance to final processing at delivery units.

Ultimately, while the Postal Service may be able to use the above information to determine where in the process a delay occurred, or to attribute a given delay to the arrival of an unexpectedly high volume of mail, there are various reasons why delay may occur that are not made visible by these data alone. For example, induction delays could be caused by a communication failure during a shift change; or the placard that postal personnel apply to containers staged for the next operation (once unloaded from the truck) may reflect the incorrect time and date of receipt or target day for clearing the mail from operations (or the placard may be missing altogether).

2. Opportunities to Improve Current Data

One way the Postal Service can improve its visibility into delays that occur before bundles reach the initial sort is by improving the data collection process. For instance, the Postal Service is investigating enhancements to the software supporting the SV mobile scanning device that would allow it to show screen prompts guiding personnel through key steps of the drop-shipment process, including prompts to perform the various required scans. In addition to improving the efficiency and timeliness of the drop-shipment and induction processes, such enhancements may promote more consistent data collection.

The enhancements also include software improvements to the SV system that enable the consolidation of existing raw data into more user-friendly reporting via SPD, thus allowing the Postal Service to make better use of the data it already has. Such reporting could provide Postal Service management with ready access to metrics such as average time between scheduled and actual arrival to the yard; average time between arrival to the yard or dock and the initiation of the unload process; and average duration of the unload process. This information could be filtered by postal administrative Area, facility, and shipper, and could be used to identify the day of the week with the highest cycle times. The Postal Service could use this information to monitor the relative performance of its facilities, for example, by identifying the highest and lowest performing facilities in terms of processing times.

Bundle Breakage

Bundle breakage is the second component of the bundle operations pinch point that the Commission identified in Chapter 6 of the ACD. Bundles can break before they arrive at postal facilities, when they are moved to the bundle sort by postal personnel, and during the bundle sort itself.

Loose pieces from a broken bundle must receive additional handling. Depending on where and how a bundle breaks, the Postal Service must manually re-bundle the single pieces, manually prepare the single pieces for flats processing on automated sorting equipment, or manually sort the single pieces. This additional handling increases processing costs and can negatively impact service performance.

1. Information Generated by Current Data Systems

There are three types of bundle breakage data which are pertinent to the concerns raised by the Commission. These are: (1) the incidence of bundle breakage; (2) the impact of bundle breakage on service performance; and (3) the costs arising from bundle breakage. The availability of granular data for each of these is discussed in this section.

Business Intelligence Data Store (BIDS)

The Postal Service uses BIDS to process Full Service IMb scan data on bundles of Standard Mail and Periodicals (including combined bundles containing both Standard

Mail and Periodicals pieces). BIDS uses Full Service data from scans collected by automated equipment during the bundle sorting process, and interprets the information in the mailer's eDoc to record nesting information, i.e., information that associates mailpieces with the mail containers (in this case, bundles) to which they have been assigned.[18]

As described above with respect to the generation of WIP reports, PostalOne! provides mailer manifest information, and both SV and FAST provide actual entry times (used for Start-the-Clock purposes) to SASP. SASP uses these data, in conjunction with scan data from automated equipment, to perform the service performance measurement calculations. Once those calculations are done, aggregated data are sent to BIDS. The Postal Service utilizes data from BIDS for bundle breakage analysis.

The operational definition of breakage in BIDS is when Full Service IMbs from three or more pieces originating from a single bundle are scanned individually by the sorting equipment. Thus, a bundle containing pieces in service performance measurement is deemed to have broken in BIDS only when it breaks during processing on the APPS or APBS, and Full Service IMbs on the loose pieces are actually scanned.

These systems have noteworthy limitations regarding bundle breakage detection, however. In order for BIDS to identify bundle breakage, the bundle must come from a Full Service IMb mailing and must break during a specific operation, that is, on equipment capable of collecting IMb scans. However, mailers are not required to submit Full Service mailings. In addition, bundles do not always break on automated equipment. Bundles can break prior to arriving at Postal Service facilities, while still in mailer-submitted containers. Bundles can also break as they slide into rolling stock after sortation.

In sum, BIDS cannot measure instances of breakage in which bundles were not part of a Full Service mailing; or are worked manually or on equipment that does not capture IMb scans; where bundles are reassembled via manual intervention and

[18] The Commission suggested that the Mail History Tracking System (MHTS) may be useful for gaining additional insight into where and when bundle breakage occurs. FY15 ACD at 167. However, MHTS does not receive data from mailer-submitted eDocs, and therefore does not have information indicating which pieces are in each bundle or tray. MHTS is typically only utilized for single piece analysis. BIDS receives the same information that MHTS receives from the machines, as well as information from mailers' eDocs, so that system is preferable.

ultimately processed as intact bundles; when bundles break in a manner other than on the machine; and instances in which postal employees apply their experience and judgment to identify at-risk bundles and divert them from the bundle processing operation prior to breakage, as a cost-avoidance decision.

Electronic Mail Improvement Reporting (eMIR)

Although not currently a tool for measuring service performance, the Electronic Mail Improvement Reporting (eMIR) system is another data system that contains information related to bundle breakage. eMIR is a web-based tool that postal employees use to report problems with the make-up of mail that is presented to the Postal Service. eMIRS is used to internally communicate serious mail quality issues and recurring problems, including bundle breakage, when it is determined that the quantity of improperly prepared mail is such that the issue will impact the efficient processing and/or delivery of the mail. Postal Service personnel manually enter issues into eMIR via PostalOne!, which then routes the data to the Business Mail Entry and Business Service Network data systems for after-the-fact follow-up with mailers.

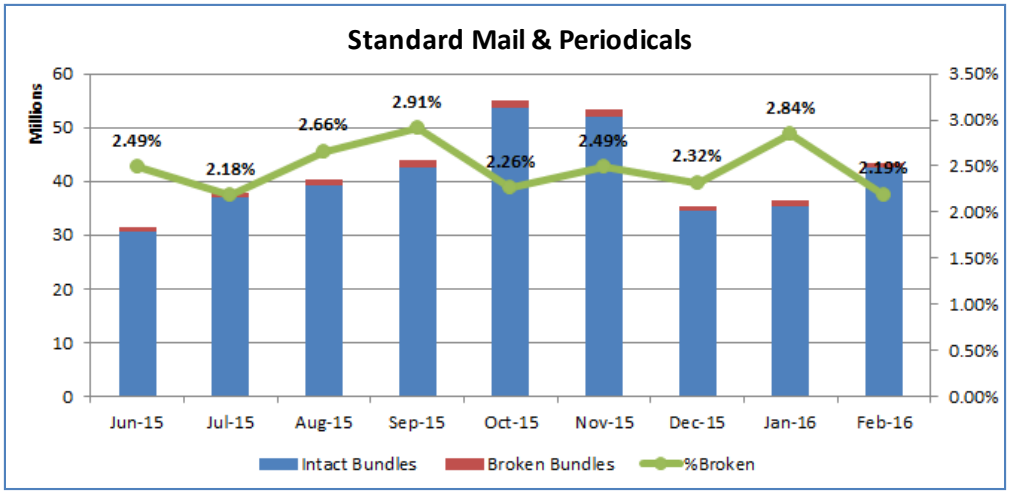
However, as stated above, eMIR is not currently a tool for measuring the service performance impacts of breakage. As an initial matter, eMIR does not provide a complete picture of the scope of breakage. Issues are manually documented and logged by postal personnel after they observe instances of breakage during mail processing. Whether an instance of breakage is entered into eMIR is subject to the time that a particular employee has available and his or her judgment of whether the issue is serious enough to warrant recording. Thus, not all instances of breakage are reported. In addition, eMIR is not set up to tie back to the data systems that are related to service performance measurement.

Bundle Breakage Visibility Reports

Using the information about bundle breakage that is stored in PostalOne!, SV, BIDS, and eMIRS, Postal Service managers have the ability to create Bundle Breakage Visibility Reports for Standard Mail and Periodicals bundles (including those which combine Standard Mail and Periodicals). These reports are created by manually gathering data from the aforementioned sources, and show bundle breakage volumes by month, by facility, and by mailer.

An example of this report is depicted in the image below, which identifies the total bundle volume on the left vertical axis, and the percentage of broken bundles out of that total on the right vertical axis. The legend on the bottom of the chart reflects bundles that were intact or broken, as represented by the blue and red colors respectively, with the green trend line tracking breakage percentage over time.

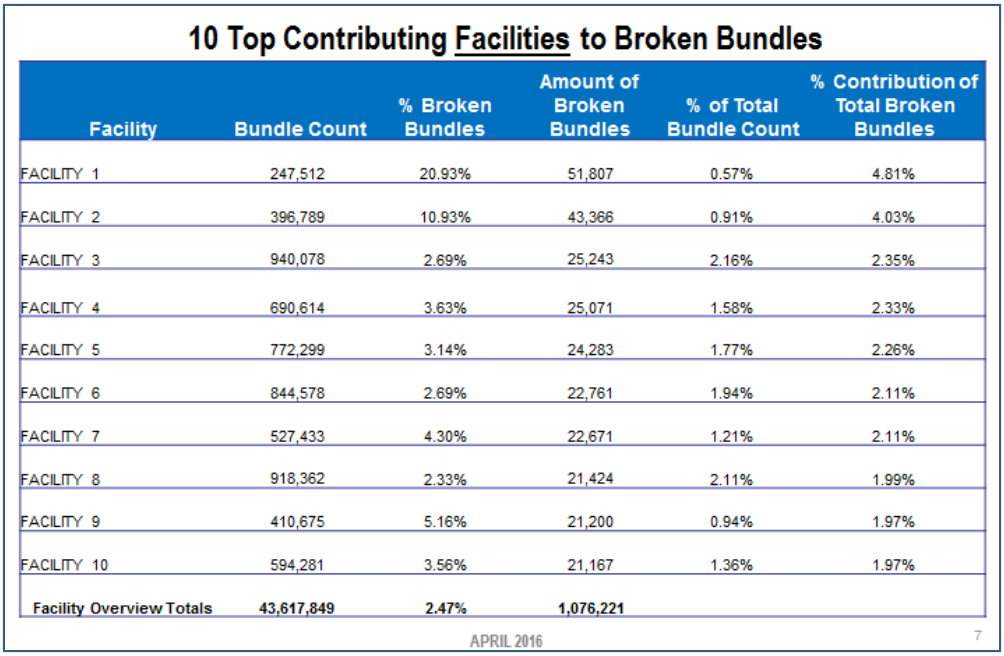
Figure 1: Example of Bundle Breakage Visibility Report



Bundle Breakage Visibility Reports can also provide data at a more granular level of detail, including, the total number of bundles processed by a facility and the percentage that were identified as broken, the number of bundles processed by a facility as a percentage of total bundles processed nationwide, and the number of bundles identified as broken at a facility as a percentage of total bundles identified as broken nationwide. See Figure 2 below as an example.[19] This information can also be broken down by machine type, by mail service provider (MSP), or by mail owner.

[19] To enhance the Commission's understanding, the Postal Service has provided an illustrative example of an actual facility-specific Bundle Breakage Visibility Top 10 Report. Information that would identify specific postal facilities is redacted, as the disclosure of the illustrative data would, if tied to specific facilities, consist of information of a commercial nature which under good business practice would not be publicly disclosed. 39 U.S.C. § 410(c)(2). Since the screen shot from the report is provided for illustrative purposes only, and not for purposes of demonstrating compliance or to respond to a specific Commission inquiry, the Postal Service submits that the underlying, unredacted documentation need not be furnished under seal.

Figure 2: Sample Bundle Breakage Visibility Top 10 Report



10 Top Contributing Facilities to Broken Bundles

Facility	Bundle Count	% Broken Bundles	Amount of Broken Bundles	% of Total Bundle Count	% Contribution of Total Broken Bundles
FACILITY 1	247,512	20.93%	51,807	0.57%	4.81%
FACILITY 2	396,789	10.93%	43,366	0.91%	4.03%
FACILITY 3	940,078	2.69%	25,243	2.16%	2.35%
FACILITY 4	690,614	3.63%	25,071	1.58%	2.33%
FACILITY 5	772,299	3.14%	24,283	1.77%	2.26%
FACILITY 6	844,578	2.69%	22,761	1.94%	2.11%
FACILITY 7	527,433	4.30%	22,671	1.21%	2.11%
FACILITY 8	918,362	2.33%	21,424	2.11%	1.99%
FACILITY 9	410,675	5.16%	21,200	0.94%	1.97%
FACILITY 10	594,281	3.56%	21,167	1.36%	1.97%
Facility Overview Totals	**43,617,849**	**2.47%**	**1,076,221**		

APRIL 2016

7

Thus, Bundle Breakage Visibility Reports can be used to determine if a large percentage of a given mailer's volume results in broken bundles, or if a particular facility or piece of equipment is experiencing excessive instances of breakage. The Postal Service and industry stakeholders use these data to gain insight into root causes of bundle breakage, to identify overarching impacts of bundle breakage on service, and to investigate top opportunity facilities, locations, and machines in an effort to develop strategies to address bundle breakage.

Measurement of Costs Arising from Bundle Breakage

With respect to measurement of cost impacts associated with this pinch point, bundle breakage costs are measured implicitly in the flats costs models (USPS-FY15-11) and included in the costs of pieces in each rate category. In concept, these model costs could be used along with information about the incidence of bundle breakage to make estimates of costs arising from bundle breakage. However, such breakage costs vary by presort level of the bundle (prior to breaking), mailer, container type, class of mail, method of sortation after breakage, and the treatment necessary to put the mail back in the mailstream, among other variables. Because the data on the incidence of bundle breakage do not capture the extremely variable breakage types/scenarios and mail processing stages at which bundle breakage occurs, the full scope and cost of

bundle breakage are not currently measurable at a more granular level. In addition, the following factors also limit the use of the models in USPS-FY15-11 to develop any specific cost impacts as a result of breakage.

- Mail Handler labor cost to collect loose pieces: Postal mail handlers perform a multitude of bundle processing activities to address broken bundles, including re-strapping bundles, collecting loose pieces and placing them in flats tubs, and loading the feed system for the bundle operations. None of these tasks are measured in USPS-FY15-11.
- Allied operations transportation labor cost of loose pieces: The Periodicals cost model (USPS-FY15-11) uses a productivity of 21.3 pieces of mail transport equipment per hour (MTE/Hr.) for general movements of MTE from one spot to another within a facility, along with an estimate that there are 1251 pieces or mail per MTE to develop unit costs for such movements. Loose pieces from broken bundles are collected from wherever these loose pieces can be identified and safely extracted. Thus, neither the generic MTE productivity nor the generic pieces/MTE values used in the cost models may be reflective of MTE used in the transport of loose pieces collected from broken bundles.

2. Opportunities to Improve Current Data

As previously mentioned, the Postal Service uses the eMIR system to document and follow up on bundle breakage issues. However, the process supporting this system is largely manual, requires the use of multiple data entry platforms, and is not seamlessly connected to mail processing equipment or to all interdependent or interrelated reporting systems. By automating current data entry, and by extending current eMIR data-flow capabilities, the Postal Service could potentially attain a higher volume of issue reporting and more robust, actionable data to address at-risk mail.

For example, such eMIR system enhancements could be supported by a process under which drop-ship induction employees use existing mobile scanners to:

- photograph and document bundle breakage issues (as well as other mail quality issues);

- scan IMbs associated with the mailing and its containers to determine the mailer's identity;
- make screen selections of concise mail quality issue descriptions; and
- submit the information directly to the eMIR system from the mobile device.

The eMIR system could potentially be designed to organize the uploaded data into a comprehensive report, which would be tied to the mailer's appointment record within the FAST system, to the mailer's permit record within PostalOne!, and to the mailer's Business Service Network file for follow-up. Such an enhancement could possibly even provide the Postal Service with near real-time information about at-risk mailings.

Another potential step in this direction would be to enable eMIR to aggregate near real-time information on breakage received from not only manual scans, but also automated processing equipment, such as the Automated Parcel Bundle Sorter (APBS) or Automated Package Processing System (APPS). The following is an illustration of how a near real-time system might function when three or more individual Full Service IMbs from within a bundle are detected on the bundle sorter.

1. Breakage details and photographs could be sent to eMIR via a Postal Service mobile device equipped with the eMIR application. The device could submit photographs, a 99M barcode[20] scan, and relevant information regarding the incident, such as on-screen selections of concise mail quality issue and breakage descriptions, to the eMIR data system as an eMIR report.
2. Bundle breakage detection data from the bundle sorter could also be collected by the Business Intelligence Data Store (BIDS), and pushed to the eMIR system as a breakage event alert for the identified mailer and tied to the eMIR report.
3. The same communication methodology could potentially occur downstream when similar IMb hits occur.
4. The eMIR system could then aggregate this information and interface with PostalOne! to help determine the circumstances under which mailings may be at risk of experiencing bundle breakage.

[20] A 99M barcode is an Intelligent Mail container barcode (IMbc) placed on mailer-prepared pallet labels that, among other information, uniquely identifies pallets and similar containers, the mail owner, and mail preparer or consolidator.

5. The eMIR system could also communicate the information to Business Service Network systems for follow-up action and possible monitoring of a customer's compliance with mail preparation standards.

B. Pinch Point Two – Low Productivity on Automated Equipment

The Commission identifies low productivity on automated equipment as the second pinch point affecting flats cost coverage and service performance. Productivity is a measurement of the workload (i.e., pieces, bundles, trays, or other articles processed) processed per work hour for a particular operation (i.e., work activity) on automated equipment. Productivity decreases when workload in a specific operation decreases and work hours do not decrease at an equal or greater rate. In other words, less volume is processed per work hour. Holding all other factors equal, processing less mail volume per work hour causes costs for affected products to increase. Work hours may decrease at a lower rate than workloads because each operation requires setup, dispatch, and changeover processes that must occur regardless of volume. Broad-based volume declines are causing lower density of mail in postal operations generally – e.g., less volume per zone or scheme sorted per run. This leads to fewer pieces per container, which tends to increase the cost per piece of container handlings, and similarly spreads the cost of other relatively fixed activities such as setting up and taking down sorting runs over fewer pieces. However, this does not necessarily imply that low volume plants necessarily have low density or productivity,[21] rather, that all plants face cost pressure from lost economies of density.

For example, an Automated Parcel Bundle Sorter (APBS) can have up to 196 output bins for sortation depending on facility space constraints. Each bin requires a container to be put into place to hold the sorted mail. This container for individual bins may be a specific type based on sort program requirements and may vary by sort program. For example, an originating mail sort program may use a pallet box while a destinating sort program may utilize a hamper. Regardless of type, a container must be obtained for each bin, and extra containers must be obtained to replace the original containers once they reach maximum capacity.

While the containers for an APBS are still being put into place, another employee is busy printing placards for each of the bins on the machine. These placards must be

[21] A low-volume facility may be more or less productive than a high-volume facility for a given activity, depending on a number of factors such as the number of distinct processing runs, facility configurations, and the like. The effect of broad-based volume declines is generally to reduce volumes throughout the system, so that all facilities would see less volume per run, per average container, etc.

generated the same day that the mail is sorted so that the contents, barcode, date, and trip information shown on the placard is accurate. Each placard must then be scanned to assign the container and affixed to the container.

When the APBS run has finished, each placard must be scanned to "close" the container. Each container must be pulled from the machine and dispatched to a downstream operation or into the transportation network. The set up for the next APBS operation then begins. The tear down of a completed run and set up of the next run is referred to as the changeover. Irrespective of the volume that is run during an APBS operation, the setup, dispatch, and changeover times are relatively static. Almost the same number of work hours need to be dedicated to all three activities because the same amount of containers are setup and a similar number are dispatched.

To expand beyond the APBS processing, a container is needed to transport the sorted mail both within and between facilities, regardless of whether the container is filled to capacity. Low container volume decreases productivity and, in turn, increases costs, as fewer mailpieces are being processed or moved despite spending a fixed amount of work hours. The same number of work hours is required whether the container is full or not.

The relationship between productivity and service performance is complex. Generally, improving service quality would be expected to increase costs and lower productivity, all other factors equal. Nominal mailflow paths may effectively serve both cost and productivity goals when mail is successfully and timely processed on the most efficient equipment e.g., when automation-compatible pieces are successfully processed on well-run automated sorting equipment. In this environment, cost and service challenges may arise disproportionately from mail that does not follow a nominal flow, such as an automation reject that may require manual processing in a later window of time.

A facility can have high productivity and poor service, or vice versa. For example, a small rural processing facility may have a high productivity due to effective local management but poor service scores due to distance and transportation related issues. Conversely, a facility may provide good service at higher cost or lower productivity by using additional labor to expedite processing. Productivity alone cannot

be used to identify service performance impacts; however, it may be used to identify the root cause of potential service failures once the failures have been identified through use of service performance measurement systems, such as IMb Service Performance Diagnostic System (SPD) and the Mail History Tracking System (MHTS).

1. Information Generated by Current Data Systems

Mail Processing Variance (MPV)

The Mail Processing Variance (MPV)[22] is one model in the suite of Operational Variance Programs. MPV provides past complement, work hour, productivity and workload data by facility, down to operational activity within each Labor Distribution Code (LDC). These data are fed into MPV from eFlash, WebCOINS, and the Web Management Operating Data Systems (WebMODS), Time and Attendance Collection System (TACS) and WebEOR:

- eFlash provides payroll and other budgetary related data;
- WebCOINS application provides timely and accurate complement information;
- TACS tracks the number of work hours dedicated to the individual operation;
- WebEOR provides volume and machine data (including run time, down time, and pieces rejected) for the APPS, APBS, FSS and AFSM;
- WebMODS combines WebEOR and TACS data, and provides the number of flats processed per work hour on the four machines;
- TACs, WebMODS and WebEOR aggregate data to the facility level.

MPV does not report in real-time; the data-outputs lag behind by one week. Consequently, MPV is backward looking, and generates reports that compare actual work hour performance against standardized productivity targets. Therefore, MPV data can be used to gauge a facility's productivity; Figure 3 below is an example of one such report generated from MPV for a facility. "Workload" is the volume of mailpieces

[22] Formerly known as the Breakthrough Productivity Initiative (BPI).

processed on the machines in a given time period. "Target prod rate" is the target pieces processed per work hour for each operational activity.[23] "Earned hours" is the projected number of work hours it should have taken the facility to process its workload, based on the target productivity, while "actual hours" is the actual number of work hours it took the facility to process its workload. "Opportunity hours" is merely the difference between actual hours and earned hours. "Percent achieved" is equal to earned hours divided by actual hours, and expressed as a percentage; the objective is to score as high as possible.

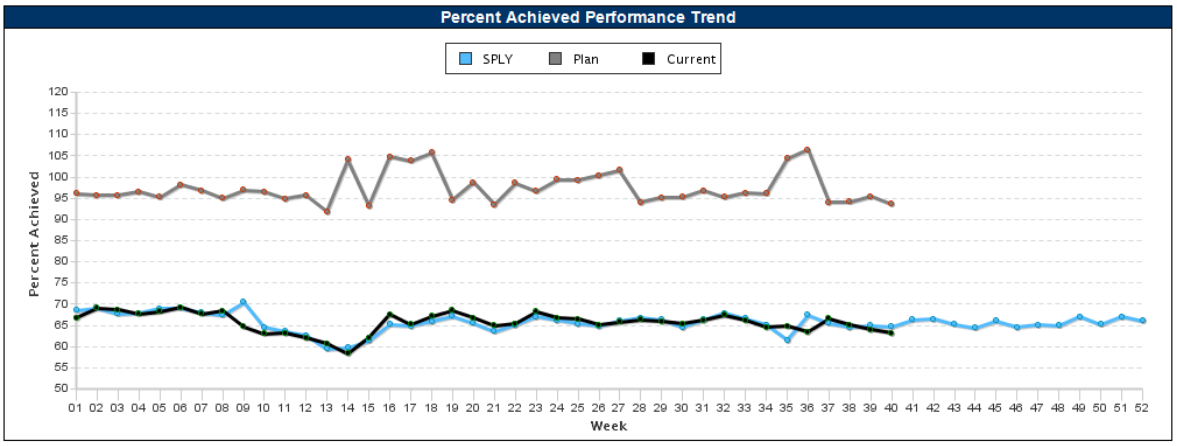
Figure 3: Sample MPV LDC data

Earned LDC 12	Workload	Target Prod Rate	Earned Hrs	Actual Hrs	Opportunity Hrs	Percent Achieved
AFSM - AI	0	3,682	0	0	0	0.00
AFSM - ATHS	0	2,647	0	0	0	0.00
AFSM - AI/ATHS	0	7,054	0	0	0	0.00
FSS	1,220,269	2,711	450	698	248	64.46
AFSM - 100	2,374,393	2,335	1,017	1,807	790	56.28
FSM 1000	0	1,082	0	0	0	0.00
UFSM	0	2,366	0	0	0	0.00
Other Volume/Hrs	0			0		
Total LDC 12	3,594,662	2450	1,467	2,505	1,038	58.56

MPV is able to trend operational performance from national results to the facility level; performance data at the individual machine level are not available. Below, Figure 4 provides an example of trended Area level data over the course of a one-year period.

[23] For instance, in Figure 3, "Automated Induction (AI)," "Automatic Tray Handling System (ATHS)," and "AI/ATH" are the operational activity groups for a different AFSM 100 lay out.

Figure 4: Sample of MPV trended data

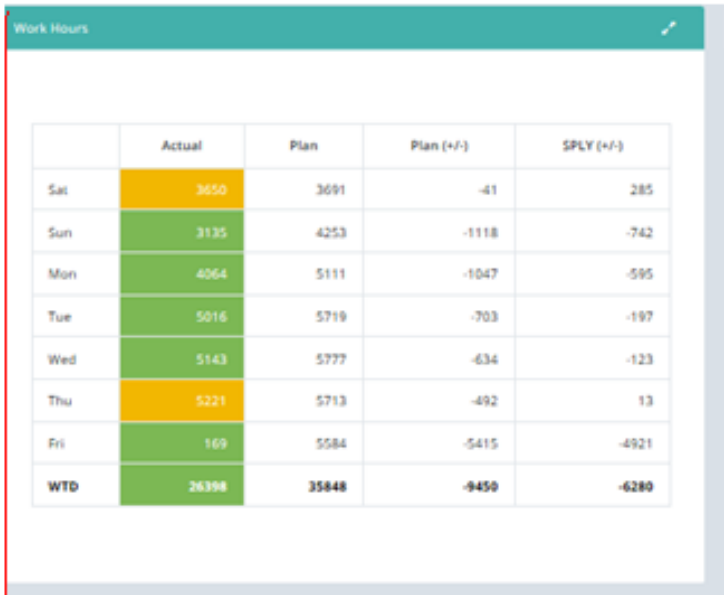


Productivity Analysis Tool (PAT)

The Productivity Analysis Tool (PAT) is a web-based application that the Postal Service developed in order to supply participating plants with daily productivity data at the facility level,[24] broken down by operational activity within each LDC. The PAT uses underlying data provided by the MPV model, including work hours and volume data. The PAT is both a desktop and a Postal Service cellphone-friendly application with as near real-time data as possible in the current systems environment. Work hour and volume data only lag by one day, instead of the one-week lag associated with MPV. The application is used by frontline supervisors and managers to enhance their ability to proactively manage work hours in a dynamic environment. Figure 5 below provides an example of the PAT interface visible to supervisors and managers.

[24] The PAT is not yet being used by all facilities.

Figure 5: Sample of the PAT application



	Actual	Plan	Plan (+/-)	SPLY (+/-)
Sat	3650	3691	-41	285
Sun	3135	4253	-1118	-742
Mon	4064	5111	-1047	-595
Tue	5016	5719	-703	-197
Wed	5143	5777	-634	-123
Thu	5221	5713	-492	13
Fri	169	5584	-5415	-4921
WTD	**26398**	**35848**	**-9450**	**-6280**

Run Plan Generator (RPG)

The Run Plan Generator (RPG) is an Excel-based application, derived from the WebEOR data system, and used by every mail processing facility to plan machine utilization based on volume, clearance times, throughputs and other criteria. RPG creates a daily plan (also known as a run plan) which is a schedule of mail processing and maintenance runs using a facility's preferred machines, sort programs and expected mail volume. For each machine (AFSM, APPS, APBS, FSS), the plan considers the individual machine information, including volume, processing window and throughput. In addition, clearance and dispatch times are also considered. Run plans are created and maintained directly by field support personnel; the plan is uploaded into WebEOR, which provides frontline supervisors and managers with access to the run plans one week in advance via reports in the WebEOR data system. A facility can utilize the run plan to forecast staffing needs, which ensures the maximization of machine throughput and proper utilization of employee hours. In addition, supervisors are able to review "Machine Chart Run vs Plan" reports from WebEOR showing how a facility actually performed against its run plan.

Mail Processing Equipment Watch (MPEWatch)

Mail Processing Equipment Watch (MPEWatch) is a program that provides near real-time monitoring of AFSM performance allowing operations managers to make adjustments or view issues affecting operational productivity. MPEWatch collects data on the AFSM's throughput and machine acceptance rate, for example. In addition, MPEWatch provides the number of mailpieces processed to a given sort plan, and produces processing reports that track the AFSM's past performance for relatable analysis.

Electronic Mail Improvement Reporting (eMIR)

The web-based Electronic Mail Improvement Reporting (eMIR) system provides a process for notifying mailers of irregularities in the preparation of mail presented to the Postal Service. The system contains data at the facility level and facilitates communication between both mailers and the Postal Service. Mailers are provided with continuous and timely feedback, and the Postal Service is able to identify resolutions to reoccurring problems, thereby allowing mailers to improve the quality of future mailings. As it helps keep machineable mailpieces in the automation mail stream, eMIR indirectly affects cost and productivity, and ensures that mailpieces retain the proper depth of sortation.

The Mail History Tracking System (MHTS)

The Mail History Tracking System (MHTS) is an online software application that allows Postal Service employees to identify improperly sequenced mail before carriers take it to the street. MHTS provides data at the facility level, and in some cases down to the individual mailpiece level. MHTS can also be used to identify mail that is being worked incorrectly on a destination sort plan and mail that is being worked at the wrong facility. In addition, MHTS tracks the cycle times of mail within a facility, cycle times of mail between facilities, and cycle times of unassigned mail. MHTS is only useful for tracking individual letters and flat pieces with Flats Identification Coding System (FICS) ID tags applied by the Advanced Facer Canceler System (AFCS), Delivery Barcode Sorter with Input Output Sub-System (DIOSS), or the Automated Flats Sorting Machine (AFSM). However, only a limited portion of overall mail volume will go through an originating operation that will apply the FICS ID tags. Nonetheless, MHTS is useful for

identifying commonly occurring incorrect mailflows that cause service performance failures. These incorrect mailflows are indirectly related to productivity, as mail that follows a nonstandard path generally can have both a negative impact on service performance and result in added costs. Identifying issues and moving the mail back to correct flows minimizes multiple handlings of mailpieces and helps indirectly improve productivity.

The Transit-Time Measurement System (TTMS)

The Transit-Time Measurement System (TTMS) generates service performance data and Single-Piece First-Class Mail Root Cause Reports which provide metrics to estimate the impacts of a variety of operational issues on service performance. The reports use mail visibility scan data along with business rules about the expected operation types and the times by which each operation should occur to examine mailpieces which failed to meet service standard and identify the point(s) of failure. Additional rules assign logic to determine the root cause when multiple issues exist. While the data available from these reports do not directly relate service performance to productivity issues, they do identify situations such as delays in origin or destination processing, missent pieces processed in the wrong facility, and situations where mail loops through operations multiple times unexpectedly.

2. Opportunities to Improve Current Data

Productivity concerns may impact the service performance of flats if mail is held too long for processing in order to maximize the volume of mail for a specific processing run. Similarly, mail that does not receive the expected processing may be indicative of productivity issues; one such example is mail that fails to be processed on FSS, despite being prepared for processing on that machine. Other examples are mail recycling or looping through operations unexpectedly. There may be a negative correlation between key productivity metrics and service performance, indicative of trade-offs between the two. There could also be situations in which extraordinary measures are taken to meet service performance at the expense of productivity when an upstream delay puts service performance at risk.

Although the Commission requests that the Postal Service explain how it could quantify the impact of productivity issues on service performance, given the

methodology for calculating productivity and for calculating service performance, there is not a way to directly relate the two. Productivity metrics are not available at the same level that service performance metrics are available, and vice versa. However, to consider the broader issue of the relationship between the two factors, one approach may be for the Postal Service to define the expected operating path for each type of flat, based on the mail class, service standard, sortation level, entry point and day of entry, and destination. The expected operating path would define the operations, i.e., sortation on automated equipment that the mail should go through at origin and destination plants. Each piece of mail in measurement would then be assessed against its expected operational path to identify whether deviations occurred.

For example, a Single-Piece First-Class Mail flat mailed from Seattle to New York would be expected to receive outgoing processing on a flats sorter in Seattle and incoming primary and secondary sorts in New York. Deviations from the expected processing pattern could then be identified and attributed to the facility in which the deviation occurred. Missent pieces with scans indicating that they were sent to the wrong facility would also be identified and attributed to this pinch point. Mail experiencing these issues would be identified as having a productivity-related issue. Because the data would be available at the measured mailpiece level, information could be available for aggregation to the origin and destination facilities involved, along with other potential aggregation levels useful for identifying failure patterns such as day of week, sortation level, etc. Consequently, the usefulness of these data would not be at the most granular mailpiece level; the ability to aggregate the data in multiple ways would allow for comparisons, i.e., across facilities and across time, that could provide valuable insight into ongoing operational issues as opposed to anomalous occurrences.

The existing TTMS Failed Mail Root Cause reports provide some of this information for Single-Piece First-Class Mail flats. While the reports provide information at a facility level, the small sample sizes of test mailpieces mean the estimates of service impact are highly variable. The proposed internal Service Performance Measurement (SPM) system currently under review in Docket No. PI2015-1 will generate significantly more data available for analysis. Similar root cause reports may be developed to include not only Single-Piece First-Class Mail Flats, but also

commercial flats (Presort First-Class Mail flats, Standard Mail flats, Periodicals, and Bound Printed Matter flats) to provide insights into the service performance issues.

From this information, the percent of mail in measurement which failed to meet operational standards for processing would be known, along with the outcome of service performance for the mail. Some issues may directly result in a service failure while others may not. This information would provide insight into the key problem areas for further analysis into the root cause of the issues.

Some additional information would be necessary to analyze productivity issues to determine the reason mail was not processed as expected. There are many factors that may drive the issue, such as the physical characteristics of the mail, volume of mail available for the processing run, and ability to meet the service standard, to name a few. Integrating systems like eMIR and Informed Visibility may offer an opportunity to better understand the issues driving a problem area like low productivity. Today, when problem areas are identified, the Postal Service often undertakes Lean Six Sigma or Kaizen studies, where the data collection can be confined to a relatively limited effort in terms of timeframe and geographic scope, and then the general findings can be used to develop system-wide improvement efforts. The level of effort to collect the kind of detailed information globally for all mail would be substantial and likely simply result in data overload without significant additional benefit to improve costs or service performance.

Furthermore, in order to quantify the cost of failures due to low productivity, the Postal Service could possibly leverage current data systems. For example, for each Postal Service facility utilizing the Management Operating Data System (MODS), the piece counts and work hours associated with each MODS operation could be married with the associated pay data for the employees in those operations to determine the cost associated with each operation. Simple division would appear to establish the direct labor cost per piece. A comparison of the resulting cost per piece -- across time for the same facility, or across facilities, or against a target cost per piece for each operation -- could help to establish the cost of the inefficiency in that operation and/or demonstrate the improvements thereto. However, a number of data issues exist that function to undermine the accuracy of the calculation. First and foremost, the MODS

data alone do not identify the products – and often, not even the shapes – of mail being handled in each of the MODS operations. In addition, by definition, the direct labor cost per piece would not account for indirect costs, and consequently would fail to provide an accurate picture of per-piece costs. Furthermore, the accuracy of the calculation is dependent on employees properly clocking into the operation reflecting the activity being performed, the enforcement of which is especially difficult when employees are fluidly shifting from one task to another. Traditional cost models utilize MODS data, but only at the national level on an annual basis and only after the outliers have been scrubbed from the data. Use of these data at the local level for relatively "real time" applications could result in anomalies that would overshadow the use of these data for calculating the cost of inefficiency against an as-yet undefined target, or capturing the improvement in such efficiency.

Additionally, there are two ways in which the Postal Service may be able to utilize Informed Visibility (IV) in order to quantify the cost of failures due to low productivity. In the future, one of the main functions of IV's Predictive Workload and Inventory feature[25] is to leverage data to optimize sort plan efficiency through an improved Run Plan Generator (RPG) and relative real-time monitoring. IV could compare the optimized RPG against the actual near real-time mailflow to help determine if expected efficiencies are being realized. Also, IV is expected to detect when sort plans are not performing as expected, and in order to facilitate a prompt resolution to the problem, may be able to generate alerts for managers to help identify the issue. However, IV's Predictive Workload and Inventory features are designed to help improve operational efficiency and not necessarily designed to determine cost. In order to track cost information, in addition to its planned feature capabilities, enhancements to IV would have to be made

[25] IV will provide a complete view of Mail Inventory for each plant, delivery unit, and carrier route, including mail that is in transit. This information will be used to assist management in matching workload to resources. In addition to current mail inventory, the system will store historical inventory including origin, destination, class, shape, and expected volume arrival times. This historical information will be used to analyze mail data for trends that factor into facilities planning, network, and delivery optimization. In addition, IV will provide Predictive Workloads information which will allow postal managers to more effectively manage mail inventory, optimize resources, and manage facility plans since inventory and workload data will be available prior to the processing and delivery day.

to assist in creating a model that would identify and estimate the additional costs above the costs expected to be associated with the optimized sort plans.[26]

Moreover, although TACS employee information flows to IV, current operational assignment processes may not be granular enough to attribute costs specific to the operation. Because IV optimizes sort plan efficiency, if the Postal Service matches individual employees with work hours associated with individual MODS operations and activities within those operations, it may be possible to track the actual performance against the cost that would have been incurred when using the optimal sort plans, or to estimate improvements against previous performance at a local level in near real time. A possible enhancement to this method would be to use the Full Service IMbs to identify the actual products and shapes of mail being handled within each operation, although that may not be sufficient to determine the operational costs associated with each product, absent assumptions that each product or shape flows at the same efficiency through the operation. This methodology, combined with subsequent sampling validation to determine accuracy and feasibility, may allow for the creation of cost models.

[26] This enhancement would require an additional capital investment, the feasibility of which the Postal Service is not addressing in this report due to the reasons delineated in Part I.B.3.

C. Pinch Point Three – Manual Processing

By definition, there is no discernible or reliable way for existing data systems to track mail that flows to manual processing. Some flats must be processed manually because they lack legible Intelligent Mail barcodes (IMbs), Flats ID Coding System (FICS) labels, or addresses sufficiently legible to be read by existing systems that can apply such barcodes. Manual processing is also required if flats are not machinable.[27] Existing data systems rely on scans of these barcodes on automated equipment to track mailpieces through the Postal Service network.

The Postal Service's service performance measurement system does not isolate flats processed manually; instead, service performance scores for flats that fall into the manual processing mail stream are incorporated into the overall service performance score for the specific class of mail, shape, and depth of sort. As discussed elsewhere in this report, the systems that measure service performance include MHTS and IMb SPD, among others.

1. Information Generated by Current Data Systems

Time and Attendance Collection System (TACS)

Work hours are measured by the Time and Attendance Collection System (TACS). TACS is designed primarily to collect the employee data needed to process payroll disbursements each pay period. TACS is also configured with a list of 3-digit operation numbers to allocate work hours to particular Labor Distribution Codes (LDCs).[28] The operation numbers are standardized across the nation, and provide the basic mechanism to track the number of work hours dedicated to a given operation, including manual processing. There are five basic types of clock rings that can be made on the Electronic Badge Reader (EBR). When an employee performs the Begin Tour (BT) and In-from-Lunch (IL) rings, the employee inputs the appropriate 3-digit operation number that corresponds to his or her assignment, or hits a button on the EBR that is preprogrammed with the most commonly used operations. If an employee does not select a 3-digit code, the clock ring operation defaults to the employee's base

[27] Manual processing is and likely will continue to be the most efficient processing mode for low volume 5-digit zones at sites with automated equipment and the only processing mode at small rural facilities without automated equipment.

[28] LDCs are the categories under which all operation numbers are organized.

(default) operation. The End Tour (ET) and Out-to-Lunch (OL) rings remove the employee from the assigned operation number. The Move (MV) ring is used to reassign an employee to a new operation number, and by default, removes the employee from the previously assigned operation. The TACS system provides the raw data used to calculate the number of hours worked by an employee on any specific operation. For distribution performed at a mail processing plant, the TACS information is transferred to the Management Operating Data System (MODS). For delivery operations involving City Carriers, the data are transferred to the Delivery Operations Information System (DOIS).

In-Office Cost System (IOCS)

While TACS provides the total hours worked within operations, IOCS provides estimates of the proportions of time spent handling mail products within all mail processing cost pools (including manual flat distribution).[29] However, it does not identify the reason why a specific product is being handled within that cost pool. IOCS cannot determine if the flat is being processed manually because it was missent, missorted, missequenced, or misdelivered; whether or not there was an equipment failure; or whether or not the mail was entered before the Critical Entry Time. Consequently, there is no visibility into the root cause of operational problems. Furthermore, IOCS is designed to be a national sampling system that covers all operations, not just the manual flats operation. Providing timely data to local operations would require a significant increase in sample size. In sum, IOCS data is of limited usefulness for improving operations.

Web End of Run (WebEOR) and WebMODS

The Web End of Run (WebEOR) system aggregates data on the quantity of mail processed on automated equipment at postal processing and distribution facilities. WebEOR data also are used to approximate manual letter and flat workloads (e.g., Total Pieces Handled or TPH) in WebMODS. Presently, each fiscal year, the Postal Service performs a single week-long survey of mail worked in the manual units, and determines the ratios of manual piece handlings from the survey to corresponding

[29] The system is documented in detail in USPS-FY15-37.

automated workloads for each shape of mail. These ratios are used to approximate the manual TPH processed at each facility on a daily basis in WebMODS. The Postal Service estimates manual sorting productivities at plants by marrying TACS work hour data for manual operations, which also flow to WebMODS, to the corresponding manual TPH.

Pertaining to manual incoming secondary sorting at the delivery unit, eFLASH provides estimates of manual incoming secondary distribution volumes. These would be based on EOR counts generated at the upstream plant if available, otherwise manual workloads are approximated by quantifying the linear measurement of mail that is worked and converting the measurements to pieces using standard conversion factors. However, reliable measures of work hours at delivery units associated specifically with manual flat distribution are not currently available, so reliable and granular manual flats productivity estimates for those offices cannot be derived from operating data.

2. Opportunities to Improve Current Data

This section describes potential opportunities to increase visibility into manual sorting, but as discussed below, these opportunities are very limited. Identifying when manual sorting occurred is difficult because of the lack of visibility in the manual sorting processes. Using the data that are currently available in the service performance measurement system, manual sorting activities may be inferred when certain expected scan events are not observed. The Postal Service would first need to define the expected mailflow path for each type of flat, based on the mail class, service standard, sortation level, entry point and day of entry, and destination. Then, the expected scans could be compared to the actual scans. For example, if there were no automation scans for pieces within a non-carrier route presort bundle prior to delivery, it would be reasonable to assume that the pieces were manually sorted. If the IMb on a sampled flat were read by a handheld scanner during the scanning process as part of the proposed internal Service Performance Measurement (SPM) system currently under review in Docket No. PI2015-1, the absence of expected intermediate scans on automation equipment may imply that the piece was handled in manual operations rather than following the expected automation path. If the measured piece failed in service performance, root cause analysis performed by the service performance

measurement system may attribute manual sorting as the likely root cause for the failure. By performing such analysis on the measured pieces, the Postal Service may be able to estimate the overall impact of manual sorting on service performance for the flats products. However, without a delivery scan for manual pieces, the Postal Service would not be able to track whether manually processed flats are delivered late more frequently than pieces sorted on automation.

In addition, pertaining to cost, the lack of universal Full Service IMb adoption negatively impacts visibility and inhibits potentially greater insight into costing. Universal Full Service adoption could, in theory, provide additional, though imperfect, visibility through electronic documentation and nesting relationships to better estimate costs related to manual sorting and cycle times for product movement through the operation, but the informational requirements are enormous and the potential improvements limited. As with service performance, IMb scans are valuable if the mailflow paths for each delivery point are known. Given the impracticality of scanning each piece in manual operations, establishing the existence of pieces in the manual operation would need to be determined residually by assumption. Defining the intended mailflow for each delivery point would allow comparison of the actual scans with the intended scans for each piece. When actual scans do not include the intended scans, it necessitates assumption of manual processing for the piece. The completeness of the IMb derived information for manual operations would be limited. The process would not distinguish between pieces worked manually and pieces destroyed. Nor would the process determine definitively if or when a piece was worked manually.

The absence of expected automation scans on pieces may imply that manual sorting occurred, but other issues could exist, making it impossible to absolutely ascertain the root cause. For example, occasionally automated equipment may not transmit the scan data correctly, even though automated processing occurred as expected. Data may not be transmitted at all, or may be rendered useless by an integrity issue; for instance, the data may be incomplete. For instance, an IMb on a mailpiece may not match the mailer's electronic documentation (eDoc); the absence of scan information may be due to the fact that a flat with the IMb matching the eDoc did not exist in the Postal Service network. For these reasons, relying on the absence of

scan data to estimate the volume processed manually may not provide more accurate estimates of volumes than current methods.

As previously stated, a significant challenge with manual sorting is the lack of visibility events; no data are available that indicate precisely when the manual sorting occurred and the Postal Service does not know the exact volume of flats sorted manually. To gain more insight into manual sorting activities, additional visibility events are needed. However, such a task would adversely impact both cost and service as extra labor and work hours would be needed; by adding visibility events, clerks would have to scan mailpieces diverted into manual processing, in addition to sorting the mail. In the future, an approach leveraging Radio Frequency Identification (RFID) technologies may allow the Postal Service to identify mail moving into manual sorting areas within plants or delivery units. Similar to the IMb, RFID is a tracking method that automatically identifies and collects data about mailpieces. However, unlike the IMb, the RFID tag does not have to be within the line of sight of the reader because the RFID reader uses electromagnet fields to collect data on the mailpiece with the RFID tag. RFID technologies have been in existence for decades, but until recently, due to the costs involved in leveraging it, were used primarily by other industries, including retail stores, for tracking the location of large items. In recent years, technological advances have lowered the cost substantially, with further advances expected as adoption of the technology grows. While wide-scale RFID usage by the mailing industry remains economically infeasible today, it is possible to imagine that in the not too distant future, technological advances will drive down the cost of RFID technologies such that it may be practicable for the mailing industry to adopt the use of RFID in the entire mail production process. With the advent of wide-scale usage by the mailing industry, an RFID tag would be placed on each piece of mail, each tray, and each container. Under such an approach, the Postal Service could use the RFID data to track mail within the plant, including into and out of manual sorting areas, for example, resulting in considerably greater insight into the location of mail at all times through the mail stream. With such data, information about the volume of manually sorted mail, broken down by shape, would be available. However, RFID data on their own do not provide information

about the underlying reason for the manual sortation; additional data capture processes would be needed.

D. Pinch Point Four – Allied Operations Cost and Service Issues

Allied operations consist of platform operations, the movement of mail and mail transport equipment (MTE) between operations, and the opening, preparation and separation of mail prior to manual or machine distribution at Processing and Distribution Facilities/Centers (P&DF/P&DC), Network Distribution Centers (NDCs), and Destination Delivery Units (DDUs). The key activities that make up allied operations are described below.

- Platform: Includes the arrival, unloading, acceptance, movement, and staging of inbound mail and MTE in dock areas. It also includes the movement, staging, and loading of mail and MTE for outbound transportation.
- Transport: Involves the internal movement of mail containers throughout facilities, using Powered Industrial Vehicles (PIV) or through manual means, to support distribution operations and dispatch schedules. The transportation activities may be between operations or to and from the dock.
- Opening Unit/Mail Preparation: Consists of separating, opening, and preparing the mail for piece processing, including removing tray lids, tray sleeves, straps, and shrink wrap to prepare mailings for induction into sorting operations. Mail preparation often requires additional facing or orientation of the mail to ensure readability.
- Dispatch: Includes the essential tasks necessary to identify, tag, separate, and direct processed mail to its final destination. Dispatch activities include sweeping (the removal of finalized mail from the sorting equipment), consolidation of mails, and application of placards or dispatch and routing (D&R) tags for transportation assignment.

The Postal Service's visibility into the flats-specific cost and service impacts of this pinch point is limited by the nature of allied work, as is discussed further below. As a preliminary matter, however, it is important to note that one must be cautious in drawing conclusions about the productivity of allied operations on the basis of changes in the ratio of allied costs to productive distribution. In Chapter 6 of the ACD, the

Commission concludes that "[t]he productivity of allied operations has declined . . . ."[30] While the Commission is aware that productivity measures for allied operations are not available (as discussed below), it indicates as a basis for this conclusion the principle that "[f]unctionally, an increase in the percentage of allied costs means that the productivity of these operations has declined."[31] However, such an analysis, standing alone, is subject to the critique that the ratio of allied to distribution costs may have been driven by changes in the makeup of the mail, without any changes in productivity. For instance, a greater degree of presortation by mailers, would, all else equal, lead to a rise in the ratio of allied to distribution costs.

Nevertheless, it is quite possible, and even likely, that allied productivity has suffered due to mail volume decline. This is true despite efforts at consolidation and service standard changes. For flats, the nature and amount of the allied work that employees must perform is generally similar or the same, regardless of whether they are handling full or partial containers. The setup, tear-down, and even handling/transport of the containers, tubs, and bundles are driven not by the amount of mail in the containers, tubs, and bundles, but by the number of containers, tubs, and bundles. However, designated mail separations required for processing sort programs limit the amount of container or other consolidation that mailers and the Postal Service can accomplish in a lower volume environment. The advantage of the separation is realized in reduced handlings in the primary operations, not necessarily allied operations. Correspondingly, the workload and work hours associated with allied operations most likely have not declined proportionately with volume, and it is therefore likely that productivity has suffered from the volume decline.

1. Information Generated by Current Data Systems

The Commission acknowledges the lack of granular cost information available for this pinch point.[32] As the Commission notes, although the Postal Service receives allied work hour data from the Management Operating Data System (MODS), there is no distribution of allied work hours between letters, flats, and parcels.[33] In addition to not

[30] FY15 ACD at 173.
[31] *Id.*
[32] *Id.* at 173–75.
[33] *Id.* at 175.

having flats-specific allied work hours, there are no data on the "volume of mail being processed in allied operations."[34] Accordingly, productivities cannot be calculated for allied operations.

The lack of data on allied work hours associated with flats is due to the nature of allied work. At plants and NDCs, allied operations involve the handling of all types of mail. With the exception of identified mailer drop shipments, most postal transportation carries multiple products and classes. It is the same with related platform operations, specifically the unloading and loading of trucks, and the transportation of mail to and from the platform. Mail preparation, opening units, and pouching may be focused on a specific type, or even class, of mail, but MODS generally does not separately identify such operations so as to track those hours separately.

Similarly, the transport of mail and containers throughout facilities is not defined by class or mail type, and dispatch tasks are normally not associated with a particular mail type or class. Indeed, dispatch and bullpen operations consolidate various types of mail into containers for particular destinations in order to maximize transportation utilization. The consolidation of mail types and classes makes the association of these allied work hours to specific mail types challenging.

Finally, there are no work hour data for allied operations at the delivery unit. At delivery units, the same personnel often work on both allied and direct operations, such that a reliable split between work hours for allied operations and distribution operations does not exist. Thus, MODS and/or the Time and Attendance Collection System (TACS)[35] provide even less information about allied work at the delivery units than they do for allied work at plants and NDCs.

Ultimately, even if the Postal Service could obtain allied operations work hour data for flats, productivity measures would still not be available for allied operations, because, as noted above, the Postal Service does not have activity-specific volume data for allied operations.[36]

With respect to service performance, the Postal Service primarily leverages the

[34] *Id.*
[35] TACS is discussed in greater detail in Part II.C., Manual Processing.
[36] FY15 ACD at 173. The only information that MODS contains regarding allied work load for plants is a work-credit for allied operations that is calculated based on volumes worked in distribution operations.

Work in Process metric (WIP) to detect possible delays at various stages in mail processing, which can help identify issues that may have an adverse impact on service. As discussed above, WIP is a cycle time report made available through the Service Performance Diagnostics (SPD) tool, which leverages data from Business Intelligence Data Store (BIDS) and Seamless Acceptance and Service Performance System (SASP). SASP and BIDS are backend systems that are used for the purpose of service performance measurement. SASP takes mailing information from PostalOne!, actual entry time data from the Facility Access and Shipment Tracking system (FAST), and scan data collected by automated mail processing equipment to perform service performance calculations. SASP then sends the aggregated data to BIDS. SPD uses the information from those systems to provide reports that help diagnose service issues.

One such aggregate provides information on the median hours between a container's actual entry time and the bundle scan. Another WIP metric shows the time elapsed from the container's actual entry time to the initial automation piece level scan. WIP reports provide data at the Area, District, and facility level by mail shape and destination entry discount, for a given period of time (e.g., the prior five days). While not directly indicative of the time used by particular activities within allied operations, these WIP metrics provide information indicating which facilities take longer between primary operations than others.

In addition to WIP metrics, the Bundle Visibility program provides some visibility into allied operations. As stated above, the Bundle Visibility program uses scan data collected from carrier route bundles at mail processing plants and delivery units. The Postal Service has been able to use Bundle Visibility information to track where carrier route bundles are actually located in the process, from acceptance to final processing at delivery units.

With proper Assign and Close scanning, the Postal Service can determine the specific container in which a given carrier route bundle is located. Before bundles are processed, Postal Service employees Assign scan the machine bin barcode, and the barcode on the container associated with that bin. All mail that is sorted into that particular bin is nested to that specific container. In other words, the Bundle Visibility report uses scan data to show an electronic association between the machine bin and

the container. Bundle Visibility reports can show when each bundle is processed, and when each bundle leaves the plant for transportation to the delivery unit. Containers are scanned again when they arrive at the delivery unit and when distribution of the bundles is finished.

Even with the current information described above, however, the visibility that the Postal Service has into its allied operations is limited. As an initial matter, Bundle Visibility relies on the performance of a very high level of manual scanning to establish the necessary nesting relationships. The Postal Service is committed to improving scan compliance at each facility to as close to 100 percent as possible in order to obtain the full benefit of this initiative; however, the visibility that can be gained from any data system is limited to the extent it relies on human intervention, as opposed to automation.

Moreover, mailers are not required to submit Full Service mailings, and even for mailings that are Full Service, the Postal Service does not have the information necessary to create a nesting relationship between pieces and bundles, and between bundles and containers. For instance, for the month of May 2016, about 60 percent of presort First-Class Mail Flats were entered with electronic documentation that provided only logical relationships between mailpieces and containers,[37] meaning that a piece of mail could be located within one of several similar containers prepared by the mailer, with the exact container that each piece was in unknown. When that is the situation, the Postal Service loses the ability to track mailpieces as soon as the containers are handled separately from one another, for example, as they are assigned to different transportation trips.

Similarly, the exact container in which a piece of mail is located is often not identifiable beyond the point when mailer-prepared containers are broken open for processing at an origin plant. In such a situation, even though information about the transportation of Postal Service-prepared containers is available, the Postal Service does not know exactly how much or which mail is in those containers. Bundle Visibility is addressing some of the challenge for bundles moving from the processing plant to the delivery unit. However, for flats that are not bundled and flats moving between origin

[37] This figure derives from the Seamless Acceptance and Service Performance data system (SASP).

and destination facilities, information about what mail is located in the containers is often not known.

Finally, while the Postal Service may be able to use the information described above to determine where in the allied process a delay occurred, there are various reasons why delay may occur that are not made visible by these data alone. For example, current data do not identify the root cause of why a container sits idle, for example, whether the container was missed, or is sitting in staging.

2. Opportunities to Improve Current Data

As discussed above, due to the nature of allied operations activities, the data provide limited opportunity to quantify the cost and service impacts of this pinch point, because there are few visibility events in the current data associated with allied operations. One potential opportunity to expand visibility of allied operations is through additional WIP metrics. With additional visibility points, additional cycle times can be evaluated. Currently, the Bundle Visibility initiative is aimed at increasing visibility points for carrier route bundles at mail processing plants and delivery units. Using the extra visibility data, additional WIP cycle time metrics between bundle handling activities potentially could be created.

There may be potential, through the implementation of additional container and tray scans, to track origin-processed mailpieces as they move through the transportation network. Currently, the exact container in which a piece of mail is located is often not identifiable beyond the point when mailer-prepared mixed containers are broken open for processing, and the constituent trays are separated, at an origin plant. In such a situation, even though information about the transportation of Postal Service-prepared containers is available, the Postal Service does not know exactly how much or which mail is in those containers. Additional scanning during this period could enable the nesting of mailpieces to trays, and trays to containers, allowing the Postal Service to track mailpieces during this period. Before pursuing such a proposal, however, the Postal Service would need to weigh the potential benefits that such visibility could afford against the added time and cost that the performance of supplementary manual scanning would impose.

Another potential method of identifying delays related to allied operations using currently available data is to measure, for a given piece of mail, the time that elapses between those processing events that are visible, and identify instances in which actual time elapsed exceeds the expected time. For example, the measurement of time elapsed between the bundle scan and the initial FSS scan for a measured mailpiece could be compared with an operational objective measured in terms of hours. If the actual time elapsed exceeds the objective, the piece could be identified as having an issue related to allied operations. The Postal Service would, in theory, have an opportunity to conduct a root cause analysis for measured pieces that are ultimately not delivered on time, and which were flagged under this process. The assignment of root cause at the mailpiece-level would allow the Postal Service to quantify the impact on service performance at detailed levels, such as by facility, day of week, and date.

E. Pinch Point Five – Transportation Operations

For purposes of this discussion, transportation operations are those involved in the movement of mail from its origin processing facility to its destination processing facility, as well as from plant to post office. The majority of flats travel over the Postal Service's surface transportation network loaded onto trailers hauled by highway contract vehicles. Transportation-related factors that can adversely impact costs and service performance include missed transportation (instances in which mail misses scheduled outgoing transportation, requiring the Postal Service to procure additional transportation); mail put on the wrong transportation; constraints on air carrier and truck capacity; and truck mechanical failures. Those factors affect service performance and could also affect costs. Other factors that would affect cost include the capacity utilization of any particular leg of transportation and the fullness of containers occupying floor space in a vehicle, both of which would be adversely affected as volume declines.

1. Information Generated by Current Data Systems

The Postal Service currently uses multiple data systems to collect information relevant to its transportation operations. These are discussed below.

Surface Visibility-Based Data

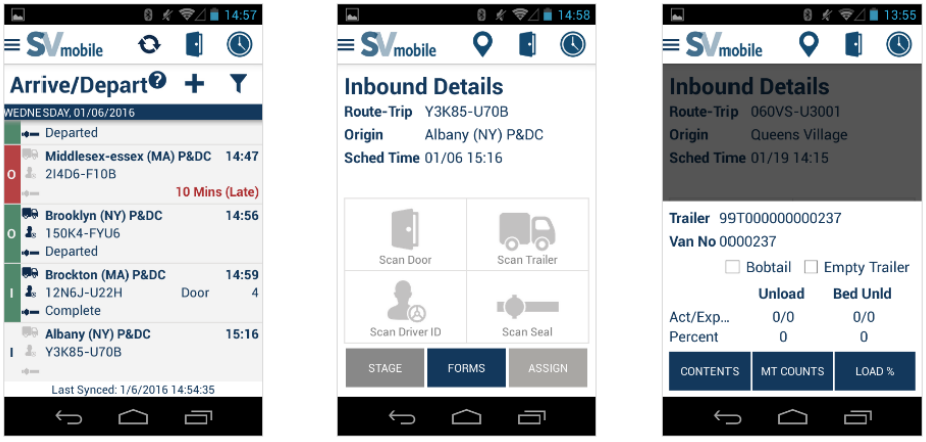
Surface Visibility (SV) is a mobile-scanning application that allows postal personnel to track mail as it is transported across the surface network. Postal personnel use handheld mobile devices to scan barcodes on trailers, handling units, and containers used to transport mail between facilities, as they move across the surface network. SV collects and links those scans, creating origin-to-destination visibility, in order to support the management and optimization of the surface transportation network.

The Postal Service uses the SV system to record truck arrivals and departures in order to determine on-time percentages. SV also records the number of containers that are loaded and unloaded onto trucks to show space utilization by container type per truck. The Postal Service implemented a national upgrade of the SV platform in April 2016. The upgraded platform allows postal managers and employees to monitor SV data in near real-time.

The SV scan events most relevant to this pinch point are described below, accompanied by images from the SV mobile device.

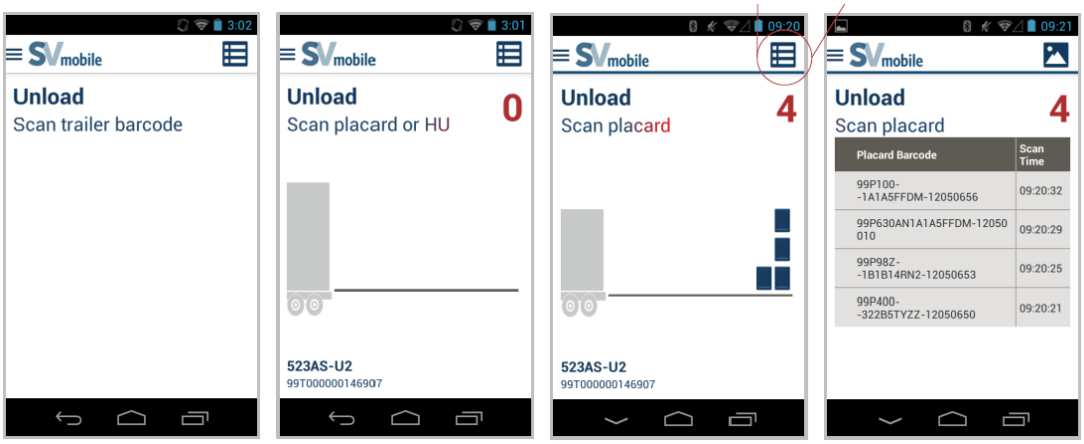
- Trailer Arrive: Employees use the SV scanning device to record all inbound trailers that arrive at the plant dock. Employees assign a dock door to the trailer and record the time that the trailer arrived.

Figure 6: Sample Trailer Arrive Scans



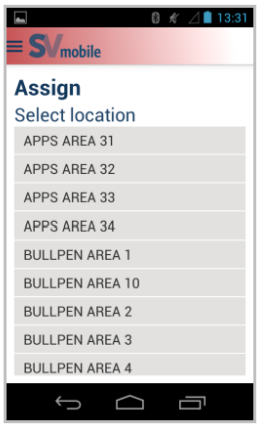
- Unload: Employees use the SV scanning device to record the unloading of all placarded containers from inbound trailers after they arrive at the dock. This scan enables the origin site to confirm that mail was received by the destination facility, and determine the time at which it was unloaded at the destination plant.

Figure 7: Sample Trailer Unload Scans



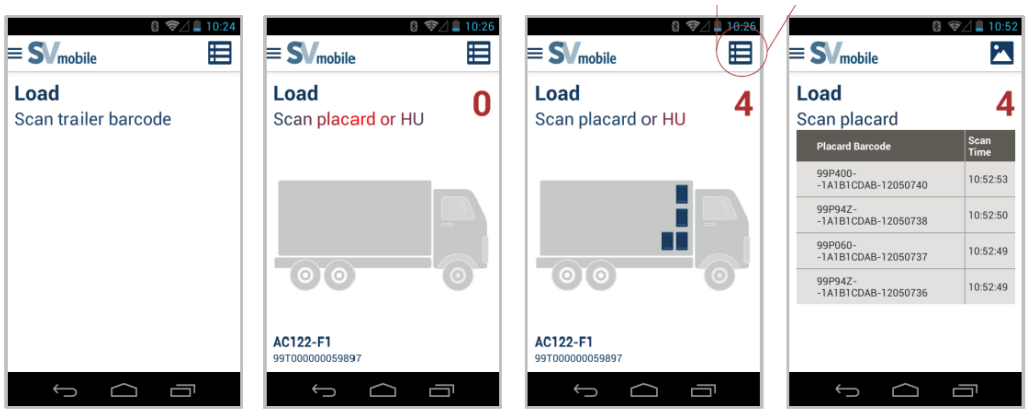
- Assign: Employees use the SV scanning device to assign placards that are attached to the various mail transport equipment used in APPS, APBS, or allied operations. This allows personnel at both origin and destination facilities to know what kind of containers are being filled with mail for dispatch. These Assign scans are vital for Bundle Visibility, which is discussed in more detail below.

Figure 8: Sample Assign Scans



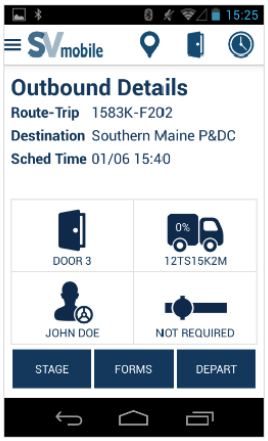
- Close: Employees use the SV scanning device to indicate that all mail that is assigned to a particular container (at an APPS, APBS, or allied operation) is ready to be moved to the dock for dispatch, either because the container is full, or because mail processing operations are complete. As discussed below, Assign and Close scans nest bundles to containers as the bundles are processed. Without these two scans, Bundle Visibility will not provide any nesting information, and the Postal Service would lose of the ability to track the mail.
- Load: Employees use the SV scanning device to record the loading of containers into an outbound trailer. This gives postal personnel visibility into the type of mail containers that are on all outbound trips to all downstream facilities.

Figure 9: Sample Trailer Load Scans



- Trailer Depart: Employees use the SV scanning device to record the departure of all outbound trailers from the facility. This allows personnel at destinating sites to know whether the trip departed on time, and how much mail will arrive at their facility.

Figure 10: Sample Trailer Depart Scan



The SV data described above are fed into the Transportation Information Management Evaluation System (TIMES) and SVWeb for analysis. The advantage of the SVWeb application is that it provides near real-time data, while TIMES does not. It is expected that SVWeb will eventually completely replace TIMES.

The TIMES and SVWeb applications allow managers to pull reports presenting Area, District, and facility data, such as the number of trips that have arrived and departed over a given period of time, the percentage of the load on each trip

(utilization), and the on-time performance for each trip. Using these reports, the Postal Service is able to track the usage of transportation resources, and identify opportunities to mitigate costs. For example, having detailed transportation capacity information and load percentages by trip allows managers to identify and resolve potential space constraint issues. SV data also allow the Postal Service to identify opportunities to eliminate or consolidate trips, and to monitor the performance of the surface transportation network.

Bundle Visibility

The Bundle Visibility program, described above, is also a source of information relevant to this pinch point. With proper scanning, Bundle Visibility reports can show when a carrier route bundle is processed, when it leaves the plant for transportation to the delivery unit, when it arrives at the delivery unit, and when distribution of carrier route bundles is finished. Utilizing Bundle Visibility reports, the Postal Service has been able to identify and improve visibility of carrier route bundles by tracking where the bundles are actually located in the mail stream. This also helps the Postal Service identify Last Mile issues that originated during transportation operations. In the past, the Postal Service struggled to determine if Last Mile issues were due to plant processing and transportation issues or customer service issues. Because scan data reflect where the mail is located, with Bundle Visibility the Postal Service is now able to identify where the Last Mile issue occurred.

Transportation Cost System (TRACS)

The Transportation Cost System (TRACS) is a statistical sampling system for the collection and aggregation of information which enables the Postal Service to allocate costs for air and surface transportation to each mail category.[38] As the Commission acknowledges, TRACS is not designed to identify or diagnose the causes of transportation-related cost and service issues.[39]

[38] The system is documented in detail in United States Postal Service, Transportation Cost System (TRACS), Fiscal Year 2015, USPS_FY15_36_TRACS.Preface.pdf, USPS-FY15-36, PRC Docket No. ACR2015 (Dec. 29, 2015).
[39] FY15 ACD at 176–77.

2. Opportunities to Improve Current Data

Transportation delays resulting from either capacity constraints or delayed trips may have an adverse impact on flats traveling between plants or traveling from a destination plant to its delivery units. Using nesting information that associates mailpieces with containers and containers with transportation, it would be theoretically possible to assign a set of rules to identify delays with transportation and to attribute an associated impact on the service performance for a particular mailpiece. For example, where such nesting information is available, the Postal Service would have the opportunity to maintain visibility of specific mailpieces as containers move on and off of transportation, provided the load and unload events are captured through the manual scanning processes.

With the new IV system and the implementation of Predictive Workload and Inventory,[40] the Postal Service will have the capacity to develop a greater understanding of product coming into the network, nesting relationships, and the movement of mail within the network. The Predictive Workload and Inventory module is being designed to combine mailer and postal data in a format that helps postal managers better understand incoming mail volume as well as historical trends. This information can help them strategically choose the most cost-effective transportation to meet applicable product service standards. When air capacity constraints put service standard achievement at risk, IV has the potential to enable Postal Service transportation managers to make real-time decisions regarding if and when product should be diverted from the air network to the surface network. Once again, however, this strategy will be dependent on mail accepted from Full Service IMb users.

The potential visibility to be gained from this program is subject to many of the same limitations that exist for current scan-based data systems. As discussed above, not all commercial mail[41] is Full Service, and even for some Full Service mail, information about which mail and how much mail is in a container, or the applicable service standard for that mail, is not always available. While the Postal Service is committed to improving manual scan compliance at each facility to as close to 100

[40] *Supra* note 25.
[41] Commercial mail is a general term for the types of mail products used by business mailers that require advanced preparation such as barcoding and sortation.

percent as possible, the visibility that can be gained from any data system is limited to the extent it relies on human intervention.

Finally, even if it could achieve such enhanced visibility, the Postal Service would still not be able to know with confidence whether a particular transportation delay was the reason why a piece of mail failed service performance. Using the data that are currently available to connect mail to its transportation, the Postal Service could analyze the pieces that failed in service performance and attribute some of those failures to a delay in transportation. For example, the existing root cause analyses in place for Single-Piece First-Class Mail Flats measured in the External First-Class (EXFC) measurement system use a root cause reason of "AADC Processing Delay" to identify pieces which received processing on time at origin but were delayed in initial processing at the destination facility, and thus indicate what *may* be transportation-related delays. However, without knowing whether the pieces left the origin plant on time, which transportation those pieces were on, and what time they arrived at the destination facility, attribution to a specific transportation-related root cause is not possible because there are other failure opportunities between the available points of visibility.

F. Pinch Point Six – Last Mile/Delivery

The Commission identifies Last Mile/Delivery operations as the final pinch point. Last Mile refers to the portion of time in transit for a mailpiece from its final automated/mechanized mail processing plant sortation or delivery unit bundle handling to its delivery by postal personnel. In light of the Commission's discussion in the ACD,[42] it seems prudent to clarify that while the Postal Service's current service performance measurement system does not provide reliable estimates of service in FSS zones versus non-FSS zones, as described later in this section, the proposed internal Service Performance Measurement (SPM) system currently under review in Docket No. PI2015-1 is capable of providing such data.

1. Information Generated by Current Data Systems

In-Office Cost System (IOCS) and Carrier Cost System (CCS)

The In-Office Cost System (IOCS) measures labor costs for products, including the cost for carrier in-office activities (Cost Segment 6).[43] However, IOCS is not designed to provide insight into the reason why an employee is handling mail. If a flat that should have been sequenced by FSS is being manually cased by a carrier, IOCS cannot determine if the flat is being cased because it was missent, missorted, missequenced, or misdelivered; whether there was a sortation equipment failure; or whether the mail was entered after the Critical Entry Time.

The Carrier Cost System (CCS) measures the volume of products delivered by carriers.[44] For city carriers, CCS can identify whether a flat was cased by the carrier as opposed to processed by FSS, but similarly to IOCS, it is not capable of providing visibility into the reason for that result. Both IOCS and CCS are designed to be national, not local, sampling systems.

Customer Service Daily Reporting System (CSDRS)

The Customer Service Daily Reporting System (CSDRS) is a web-based reporting program encompassing all Postal Service delivery facilities: street delivery

[42] FY15 ACD at 179 ("Specifically, the Postal Service did not clearly identify if it routinely tracks and quantifies service performance for FSS zones compared to non-FSS zones.").
[43] The system is documented in detail in USPS-FY15-37.
[44] The City Carrier Cost System (CCCS) is documented in USPS-FY15-34, while the Rural Carrier Cost System (RCCS) is documented in USPS-FY15-35.

units (both city, rural, and contract routes), and non-street delivery units with Post Office Box delivery. The system allows Post Offices, stations, and branches to report curtailed (Standard Mail only)[45] and delayed volumes of mail by class and type (by piece) as information and for potential action or intervention by Postmasters or District, Area, or Headquarters personnel. Data are available at the 5-digit ZIP Code level all the way to a national aggregate, and various organizational levels in between. Data can also be aggregated over specific time frames. The specific items tracked by CSDRS are demonstrated in Figure 11 below, which separately identifies mail volumes delayed in the Post Office by carriers (Delv) and mail volumes delayed in the Post Office by clerks (C/S). Delayed volume is defined as mail scheduled for delivery on a given date but not sorted by clerks and/or delivered by carriers on that date.

Figure 11: Example CSDRS Executive Summary Report

Executive Summary Report

Start Date: 27-Apr-2016 **Area:** Capital Metro **MPOO Group:**
End Date: 27-Apr-2016 **District:** NORTHERN VIRGINIA **ZIP Code:** 20111

Back to Route Status

Click highlighted column heading to sort by that column.

Zip Code	Delayed																	
	Pref Ltrs		Pref Flts		Std Ltrs		Std Flts		Ele Mail		Pol Mail		Pkg Serv		Priority		Periodicals	
	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S
20111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Additional metrics captured by CSDRS that can have service impacts include: late departure and return of carriers, missent mail (sent to the wrong delivery unit by a mail processing plant), missorted mail (sorted to an incorrect route with the same destination service area), mail arriving late to the delivery unit, and mail from a processing plant for which carrier route sortation was expected but not applied. District level personnel perform random on-site "service reviews" to ensure local compliance with CSDRS reporting requirements and accuracy of reports.

[45] Standard Mail that arrives at the delivery unit on a delivery day before the date implied by the applicable service standard may be "curtailed," or held back from delivery, until its expected delivery date. A curtailed Standard Mail mailpiece becomes "delayed" if it is not delivered on its expected delivery date.

Delivery Operations Information System (DOIS)

The Delivery Operations Information System (DOIS) is a program utilized exclusively at city delivery units. To count manual volume in delivery units, supervisors record the flat mail distributed to carriers manually via a linear volume count process. Generally, counts are performed by measuring the amount of flats present at the carrier case in linear inches using various measurement devices such as adhesive tape applied to various flat containers and carrier cases, or a yard stick. The actual count entered into DOIS is converted into pieces from the total inch count at a conversion of 9.5 pieces per inch. While DOIS tracks city carrier office hours in total, DOIS does not track city carrier cost or work hour data for flats. In fact, no Postal Service data system tracks city carrier flats work hours.

Hot Case Scan

Each delivery unit has a separate carrier route distribution Hot Case which is used by clerks to manually sort First-Class Mail letters and flats, and Periodicals for which delivery is expected on the day of Hot Case sortation. If offices have city delivery carriers, the "slot" on the case for each carrier route has a Managed Service Point barcode applied on the top of the shelf, over which the mail is placed.

When departing for street delivery, each city carrier is required to extract any mail from the Hot Case for their specific route and scan the Managed Service Point barcode with their hand held scanner. The carrier is expected to deliver these mailpieces on that day. City delivery carrier supervisors have access to reports that show the time of the Hot Case scan or signify whether scans were missed. The data from these scans are retained in DOIS.

Both city and rural carriers employ a similar system using a red "Hot Case Card" that is placed in the slot when the mail is removed, in lieu of a barcode scan for rural carriers, and performed in addition to the scan for city carriers. The Hot Card system requires a visual inspection of the Hot Case to ensure that all carriers have completed their required final pull of the case. In practice, most supervisors (of both city and rural carriers) find that a simple inspection of the case for any remaining mailpieces after carriers depart is a simpler and more efficient method of ensuring compliance.

Mail Handling Tracking System (MHTS)

The Mail Handling Tracking System is a program that can provide individual mailpiece metrics using barcode technology. Although the MHTS is generally used with greater frequency to track mail processing rather than delivery operations, the system generates valuable reports utilized by Delivery Operations, such as Looping DPS and Pre-M error reports.

Looping DPS

The Looping DPS feature of MHTS displays mailpieces that have been through processing more than once. Although there are other potential causes of looping DPS that may not be related to the incorrect handling of mail, Delivery Operations is primarily interested in identifying the locations in which carriers may be placing undelivered mail back into the mailstream. The Looping DPS report is generally used by Area and District offices at a high level view in order to detect trends and/or high amounts of looping in a particular office or on a carrier route as an indication that proper mail handling processes are not being followed.

Pre-M

The Pre-M feature of MHTS provides some detail on potential out-of-sequence errors caused by specific events on DPS mail processing equipment. The reports from this feature are provided to delivery units prior to carrier departures and allow units to correct missequenced mailpieces in the office, thus reducing 3M errors.[46]

Service Performance Measurement (SPM)

The proposed internal Service Performance Measurement (SPM) system currently under review in Docket No. PI2015-1 includes a web-based program that provides local managers near real-time intelligence on Last Mile delivery from the final processing of automated letters and flats at mail processing facilities to the actual delivery point. Testing of SPM rolled out nationwide in September of 2015. Under SPM, postal clerks and carriers scan mailpieces and data from those scans are used to measure service performance.[47] On each delivery day morning, the carrier scanner

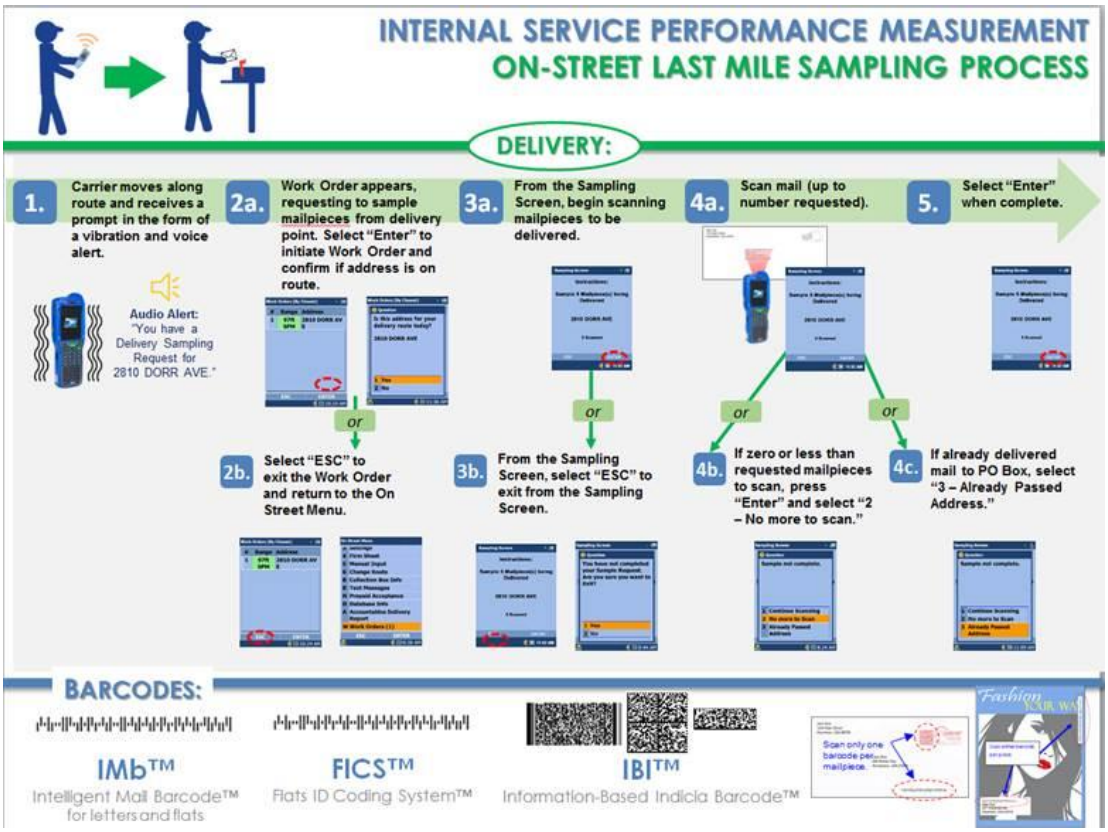
[46] 3M errors include mailpieces that are misspent, missorted, and missequenced (sorted to the correct route but not in the proper place within the tray of mail).

[47] Both Collections (first mile) and Delivery (last mile) are measured.

downloads a file that has the SPM orders for the carrier's workday. The work orders are the randomly selected addresses where mailpieces having a barcode will be scanned just prior to delivery. For delivery on city, rural, and highway contract routes, the sampling work orders are triggered on the scanning devices when Postal Service personnel cross a geo-fence indicating they are near the selected delivery point.

When data from delivery scanning is matched with the automated mail processing scans (or manual scans performed by Postal Service personnel for Bundle Visiblity in the case of Standard Mail, Periodicals and BPM flats within bundles), the Postal Service is able to identify delays between processing and delivery. If the delay makes a mailpiece that was on time at its final automated processing move into the late service performance category, the mailpiece is deemed a Last Mile failure. The internal service performance system allows for the identification of Last Mile delays and failures down to the mailpiece level, so that the Postal Service can identify problems at very detailed levels such as carrier and delivery unit, in addition to route types, mail types, weekday, FSS zone versus non-FSS zones, and more.

Figure 12: Overview of the Internal SPM On-Street Last Mile Sampling Process



Current Last Mile service performance impact reporting for Presort First-Class Mail flats, Periodicals, Standard Flats, and BPM flats is calculated by subtracting on-time scores for mail measured from start-the-clock to final automated processing from overall service performance scores for mail measured from start-the-clock through delivery. However, the Postal Service's ability to directly utilize its current service measurement system to examine Last Mile impact on service performance is limited by the system's design. That system relies on approximately 15,000 residential mail recipients across the country who are hired by an independent contractor to record and report data regarding their receipt of mail in a manner that keeps their participation in the measurement system confidential and unknown to the Postal Service. Access to the addresses of these anonymous reporters by the Postal Service would help in the diagnosis of Last Mile service issues, but would compromise the integrity of the current measurement system.

The virtues of the current measurement system aside, there are features of the proposed internal SPM system that enable its use as a reliable source of Last Mile operational diagnostics. Among them is its inclusion of virtually all of the more than 150 million residential and business delivery addresses for measurement based on a random selection process. This exponential expansion in delivery points from which data are collected provides broader and more granular geographical coverage and more robust data for evaluating Last Mile pinch points than 15,000 delivery addresses.

The Internal SPM plan was implemented in Quarter 2 of Fiscal Year 2016 and the Postal Service is now capturing daily samples on virtually all market dominant products across a nearly universal delivery address base. These data are providing insight on Last Mile service pinch points in mail processing and delivery. New visualization tools are being utilized by postal managers to access live mail sampling data to pinpoint systemic issues associated with Last Mile delivery. For example, if specific delivery units are identified as experiencing Last Mile issues, and those units are serviced by the same transportation, operations managers have the opportunity to review and adjust dispatch and transportation schedules to improve Last Mile performance. At an even more granular level, the Postal Service expects to utilize SPM data to gain insights on Last Mile impacts by process flow, product type, delivery unit, transportation flow, and even down to the individual carrier and/or carrier unit level to address pinch points that have an impact on service.

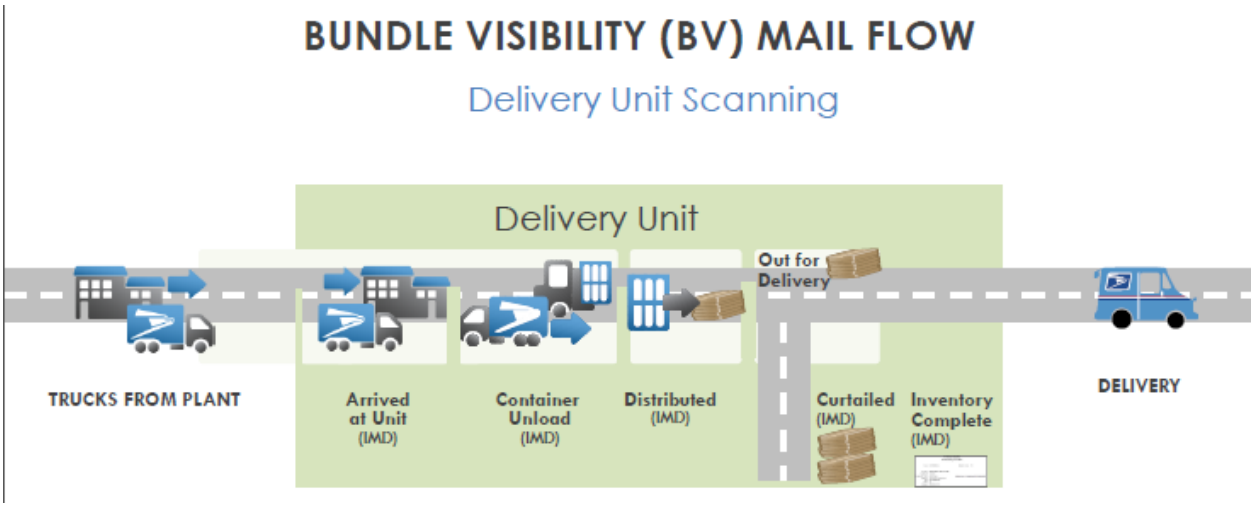
It bears emphasizing that the Postal Service is in the nascent stages of generating SPM data and organizing the manner in which those data will be systematically utilized to evaluate Last Mile operational issues. It is premature to thoroughly assess how its data generation could be improved for purposes of obtaining more insight into operational issues.

Bundle Scanning Visibility Scorecard

Bundle Visibility is a process for indicating when mailer-prepared carrier route bundles arrive at a delivery unit, are processed, and delivered. This process also allows for scanning of bundles that are curtailed. Tracking and monitoring of this process in Delivery Operations is achieved using the Bundle Scanning Visibility Scorecard, which is a sub-set of the IMb Service Performance Diagnostics System and a web-based

program accessible by all levels of postal management. District and Area managers can access this information to monitor the timely handling of these bundles which can account for a significant amount of volume in delivery units, particularly those without FSS processing. Figure 13 below demonstrates the process flow.[48]

Figure 13: Bundle Visibility Mailflow



The scorecard displays key data elements on scanning compliance; expected versus actual bundle scans, the number and percent of bundles sent out for delivery and those curtailed in the unit. Data can be displayed nationally, by Area, District, and down to the delivery facility level. An example of data from a one-week national report is shown below, followed by an explanation of the data presented.

[48] In the diagram, IMD stands for Intelligent Mail Device; in realty, the Mobile Delivery Device (MDD) may be used instead of the IMD. Today, clerks use the IMD, while Letter Carriers use the upgraded MDD.

Figure 14: Example of data presented on the Bundle Visibility Scorecard

DU Bundle Visibility Score	Distributed Scan Compliance	Expected w Distributed Scans	Actual w Distributed Scans	Distributed Scans Variance	OFD Bundles Percentage	Expected w OFD Scans	Actual w OFD Scans	Curtailed Bundles	Inventory Complete Scan Compliance	Expected w Inventory Complete Scans	Actual w Inventory Complete Scans	Inventory Complete Variance
75.60%	83%	3,504,749	2,908,749	596,000	91.10%	2,908,749	2,648,729	260,020	93.40%	40,586	37,909	2,677

- **Delivery Unit (DU) Bundles Visibility Scores** – "Actual Out for Delivery (OFD) Scans" divided by "Expected Distributed Scans," expressed as a percentage.
- **Distributed Scan Compliance** – "Actual Distributed Scans" divided by "Expected Distributed Scans," expressed as a percentage.
- **Expected Distributed Scans** – Total FSS bundles that received an APPS/APBS scan, no downstream mail processing equipment (MPE) scan, and are nested to a container with a scannable placard at the delivery unit.
- **Actual Distributed Scans** – Total FSS bundles that received and APPS/APBS scan, no downstream MPE scan, and nested to a specific container at the delivery unit.
- **Distributed Scans Variance** – Difference between "Actual Distributed Scans" and "Expected Distributed Scans."
- **Out For Delivery (OFD) Bundles Percentage** – "Actual OFD Scans" divided by "Expected OFD Scans," expressed as a percentage.
- **Expected OFD Scans** – Total bundles that received an APPS/APBS scan, no downstream MPE scan, and nested to a container with a scannable placard that received a distributed scan.
- **Actual OFD Scans** – Total bundles that received an APPS/APBS scan, no downstream MPE scan, and nested to a container with a scannable placard that received a distributed scan.

- **Curtailed Bundles** – Difference between "Actual OFD Scans" and "Expected OFD Scans."
- **Inventory Complete Scan Compliance** – "Actual Inventory Complete Scans" divided by "Expected Inventory Complete Scans," expressed as a percentage.
- **Expected Inventory Complete Scans** – Total count of delivery units that are required to perform the "Inventory Complete Scans."
- **Actual Inventory Complete Scans** – Total count of delivery units that performed the "Inventory Complete Scans."
- **Inventory Complete Variance** – Difference between "Actual Inventory Complete Scans" and "Expected Inventory Complete Scans."

Transit Time Measurement System (TTMS)

Transit Time Measurement System (TTMS) data from the EXFC and IMAPS service performance measurement systems calculate Last Mile impact for flats, with reports available at several levels. Weekly reports provide information at the destination District level for Presort First-Class Mail flats by service standard, for Standard Mail and Periodicals flats by destination entry type and service standard group, and Bound Printed Matter (BPM) flats by destination entry type. Reports are also available showing rates of Last Mile delays for groupings of 5-digit ZIP Codes within Districts for these same products. For Single-Piece First-Class Mail flats measured by EXFC, there are biweekly "Root Cause" reports which provide information about Last Mile failures at the destination District and destination plant levels.

2. Opportunities to Improve Current Data

While the currently defined Last Mile impact in both the current service performance system and the proposed internal SPM system is a useful metric, it may be beneficial to refine the business logic to more accurately quantify the impact of delivery on service performance in some instances. For example, consider Standard Mail flats that were in carrier route bundles that did not arrive at the delivery until the morning of the date they must be delivered to meet the service standard. If such flats are delivered after the service standard, they are currently identified as Last Mile failures under both

current service performance system and the internal SPM system. More aptly, such failures might be labeled as transportation delays or processing delays because the operating plan called for more time dedicated to delivery operations than was available. The work which would be involved in building such business logic is similar to that described for other pinch points. The business rules defining the conditions under which a piece would be attributed to the Last Mile failure category would need to be established and then software programs in the internal SPM system could be developed to assess the pieces in service performance measurement against those refined rules. The costs involved in such an effort may prove not to be significant, but additional visibility data (beyond what is available for flats in the current service performance system and the internal SPM system) may be needed to more reliably distinguish between delays in moving the mail from the plant to the delivery unit, and delays in Last Mile/delivery. However, even without additional visibility event data, more refined logic to take into account checkpoint times would likely be beneficial.

Pertaining to cost, as the Commission is aware,[49] IOCS and CCS data are of limited usefulness for improving Last Mile operations. IOCS and CCS data provide no visibility into the root cause of operational problems; the systems only measure *what* employees are handling, not *why*. In addition, they are designed to be national, not local, sampling systems. The ability to provide timely data to local operations would require a significant increase in sample size under both systems, and consequently, necessitate a significant investment in the systems. For the reasons set forth in the introduction of this report, attempting to estimate the cost of expanding the sample sizes at this time would be a futile and impractical exercise.

[49] FY15 ACD at 164.